

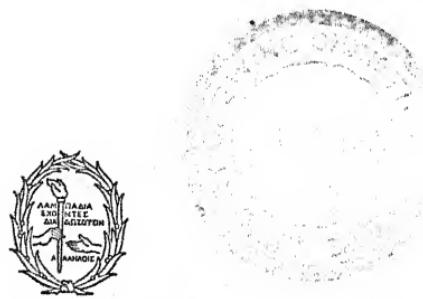
A TEXTBOOK FOR INTRODUCTORY
COLLEGE COURSES IN ECONOMIC PRINCIPLES

Fundamentals of Economics

FIFTH EDITION

BY PAUL F. GEMMILL, PH.D.

Professor of Economics, University of Pennsylvania



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Preface to the First Edition

FUNDAMENTALS OF ECONOMICS is intended for use in introductory college courses in economic principles. It aims to explain the workings of our economic system in simple, straightforward fashion. My chief concern has been to present the subject clearly and interestingly. To this end I have introduced a good many illustrations from actual business practice, with the thought that economics should be taught with an abundance of concrete examples and that genuine illustrations from the world of business are more effective than hypothetical cases in gaining the interest and enthusiasm of the student. It is my feeling that, in a book dealing with elementary economics, there is much to be said for emphasizing the fact that economics is, after all, simply an accurate description of principles that are utilized every day by enterprisers, landowners, wage earners, and capitalists.

The material here presented was written for use in a course in economic principles required of all students in the Wharton School of the University of Pennsylvania. It has gone through two mimeographed editions, and has benefited by friendly criticisms and suggestions from a group of experienced teachers, whose familiarity with the leading textbooks on economics has made their comments particularly valuable. My thanks are due my colleagues, Messrs. Ralph H. Blodgett, Raymond T. Bowman, E. Douglas Burdick, H. LaRue Frain, Leland J. Gordon, J. Weldon Hoot, C. Louis Knight, Maynard C. Krueger, William N. Loucks, and Ralph A. Young, for counsel given over a considerable stretch of time.

All of these associates of mine have been most generous in offering encouragement and constructive criticism. I may mention specifically that Messrs. Blodgett, Bowman, Knight, and Loucks examined many of the chapters with painstaking care before they were used by the students in mimeographed form. For this assistance I must express sincere appreciation. But I owe a special debt of

gratitude to Mr. Bowman, upon whose time this book has made, I fear, quite unjustifiable inroads. Fortunately for me, Mr. Bowman's keen interest in economic theory and its presentation to college students rendered him seemingly oblivious to encroachments of this kind.

My wife, Jane Brown Gemmill, assisted in the revision of the manuscript, and is responsible for important changes in the material. Mrs. Margaret Gilfillan and Mrs. Helen S. White typed and stenciled the manuscript several times, and aided, also, in the burdensome task of proofreading. For all of this help, so cheerfully given, I am most grateful.

P. F. G.

Philadelphia, August, 1930.

Preface to the Fifth Edition

ECONOMIC CHANGES that have taken place in the past dozen and a half years have made it necessary to bring out four revisions of *Fundamentals of Economics* since its publication in 1930. The willingness of the publishers to reset the entire book in each edition made possible not only a thorough revision of the original material, but also such expansion or contraction as seemed called for in the light of its use in so many colleges and universities.

The general plan of the book has remained substantially the same since the publication of the first edition, but there has been extensive rearrangement of the material within individual chapters, together with much rewriting and some changes in emphasis. This latest edition, for example, reflects the rather general concern that has been felt over the behavior of prices in the war and post-war period, and sets forth briefly the basis of the hope—expressed by some very able economists—that it might be possible to avoid future depressions by adopting the Keynesian plan for full employment.

For assistance in preparing this new edition, I am deeply indebted to former and present colleagues at the University of Pennsylvania, and to the many teachers of economics who have generously given me the benefit of their experience with the first four editions of the book. For their friendly criticisms and suggestions I am most grateful.

PAUL F. GEMMILL

Philadelphia, January, 1949.

1. Human Wants and Scarcity

*M*aking a living is, for most persons, a very serious matter, which occupies most of their waking hours. Only a few are free to spend their time in the pursuit of pleasure; for the many, the law of life is daily work. Sometimes this work is agreeable and highly remunerative; often it is burdensome and poorly paid. But whatever the nature of the task, and however great or small the material reward, modern man continues, literally or figuratively as the case may be, to fulfill his destiny as expressed in the words, "In the sweat of thy face shalt thou eat bread."

The starting point of economic life is the existence of human wants. Some of the things that man wants are so essential that he cannot live without them, while others, though they contribute to his well-being and comfort, could be dispensed with without great hardship. But all of man's wants, whether great or small, must be satisfied—if they are to be satisfied at all—out of a limited quantity of commodities and services. It is important, as we enter upon the study of economics, to see clearly the exact nature of the difficulty that man faces as he goes about his daily task of making a living. Hence, this introductory chapter is given over to showing, in some detail, that the word "economics" implies conflict; that, indeed, it has no significance apart from this implication; and that economic conflict arises out of two conditions which are found in every economic society—the multiplication of human wants, on the one hand, and the limitation of goods for satisfying those wants, on the other.

THE MULTIPLICATION OF HUMAN WANTS

Early Economic Activity. In those sparsely populated parts of the world which are free from killing frosts and which, because of favorable climatic conditions, produce vegetation throughout the year, man is able to secure the bare necessities of life with small expenditure of effort. The food he requires is his for the taking, in

large part, since it is provided free by nature; and so slight are his requirements in the way of clothing and shelter—again because of climatic conditions—that they can scarcely be said to constitute an economic problem.

But in regions somewhat distant from the equator, man is commonly under the necessity—and sometimes a painful one—of stirring about and making a living for himself and those dependent upon him for support. For the seasonal changes of the temperate zone make it imperative that he consider the future. Since the frosts of winter put a stop, at least temporarily, to the productivity of much of the plant life upon which man depends for sustenance, he must lay by grains, nuts, and other foods to supply his wants during the cold, barren months of the year when berries and other fresh fruits cannot be had. Or, if he neglects thus to provide against hunger, he is driven to the necessity of hunting or fishing in order to stave off starvation. In either case, he is less carefree than the native of the tropics. He finds himself in an environment in which his wants are not cared for gratuitously by nature. In a word, he finds it necessary to engage in economic activity.

This activity is not confined to a search for food. Our *homo sapiens* of the temperate climates discovers that, though the weather is pleasantly warm during part of the year, there are times when it is painfully cold. Clothing and shelter, which are of little importance in the tropics unless for adornment and display, constitute here a genuine need. The need is met by further economic activity, for, though it is bad enough to have to fashion skins into clothing for the sake of warmth or build a hut to shut out the cold and snow, it is after all not so bad as freezing to death.

Migration and the Increase of Wants. We shall not attempt to trace the development of human wants from a primitive stage of existence to the present day and age. We have aimed merely to show how wants may increase under the lash of necessity. If man had succeeded in restricting population to suitable numbers, and had been content to remain in those “cradles of civilization” of which historians write, he might have avoided many problems that have faced him in his struggle to make a living. For he could thus have escaped the hardships of those regions in which nature is less generous—in which she not only yields fewer units of product per unit of labor expended, but at the same time imposes harsh climatic conditions which multiply

the number of commodities and services that man must have if he is to enjoy a reasonable degree of safety and comfort.

The Expansibility of Human Wants. However, it appears probable that, in any event, an increase in economic activity would have come as the years passed by, owing to the fact that human reproduction and human wants seem to be capable of indefinite expansion. Generation by generation, century by century, man has not only increased in numbers but has been insistent in his demand for more things, for new things, for what have seemed to him to be better things. Passing abruptly from prehistoric to modern times, we may note in fairly recent developments in the United States some evidences of the expansibility of human wants.

We expect, of course, to find among human beings in general a desire for such fundamental goods as food, clothing, and shelter. But once these goods—which, in most cases, are essential to survival—have been secured, there arises promptly a desire for other things; and so strong is this desire that the hope of gratifying it leads man to engage in irksome activities which have as their goal the fulfillment of wants. As for food, clothing, and shelter, man is no longer content merely to satisfy hunger and protect himself against the elements. Adam Smith, the most noted of early English economists, wrote, more than a hundred and fifty years ago: "The desire for food is limited in every man by the narrow capacity of the human stomach; but the desire of the conveniences and ornaments of building, dress, equipage, and household furniture, seems to have no certain boundary."

There can be no question of the accuracy of the latter part of this quotation, but Adam Smith's observation about food is correct only as it relates to *quantity* and not to *quality*. It is doubtless true that the capacity of the human stomach is limited, but for all except those in abject poverty eating is more than a process of consuming all the food one can hold. There are cheap eating places, to be sure, at which one may gorge oneself for a quarter, but such a meal is scarcely comparable to a five-dollar dinner at the Waldorf. Man now insists upon variety in food, and to obtain that variety he draws upon distant lands for foods that are not grown in his own neighborhood. Thus the average American consumes coffee from Brazil, tea from Ceylon, and sugar from Cuba; while those in the high-income groups eat caviar from Russia and other delicacies that are absent from the menus of the masses. Moreover, the desired foods must be available in season and out of season. Our fathers and our fathers' fathers found it pos-

sible to get along with canned and dried fruits and vegetables during the winter months. But wants along these lines have expanded, and past makeshifts no longer satisfy. We have witnessed, during the past few decades, a tremendous increase in the demand for green groceries throughout the year, with the result that lettuce, celery, string beans, tomatoes, and other fresh vegetables are imported from warm areas, produced under glass near at hand, or kept in substantially "fresh" state by the process of quick-freezing.

There is no need to speak at length of the increase in wants so far as clothing is concerned. Whether we are actually better dressed than our forefathers is an open question, both sides of which have their defenders. In general, the very wealthy have always spent lavishly for clothing, but there can be little doubt that the average person's interest in dress has increased in recent times; that is, his wants in the way of clothing have been expanding. He is, to borrow a phrase from the jargon of the advertising man, becoming "clothes-conscious." The almost total abandonment of cotton hosiery and the growing popularity of fur coats are indications of the trend of the times.

The expansibility of human wants is evident, moreover, in the development of more elaborate shelter. American homes of long ago may have been regarded as comfortable, and were often larger than those of today, but they lacked many of the conveniences that are now thought of as indispensable. Modern plumbing, electric lighting, and central heating are now taken as a matter of course, though they were almost unknown a half-century ago. The success of air conditioning in theaters and railway trains, and the enthusiastic public approval of this recent development, point to the probability that many Americans will soon have their homes equipped with air-conditioning plants, so that they may enjoy in summer the artificially regulated temperature which is now provided in winter by automatically controlled central heating.

What we have said above indicates that luxuries speedily become necessities. Once an article possessed by a few has demonstrated its usefulness, the desire for it spreads like wildfire, and steps are promptly taken, through an increase in economic activity, to make it available for a larger number of people.

Imitation and the Expansion of Wants. In the automobile and radio we have excellent illustrations of the multiplication of human wants. In 1900, the automobile was virtually unknown; today millions of motor vehicles crowd our streets and roads—so many millions that

they have created a genuine problem in the handling of traffic. In a single generation, the desire for swift, cheap, convenient transportation has found expression, and to a great extent has also found fulfillment. To satisfy this want required the construction of a vast array of factories of various kinds which, in 1940 (before being converted to wartime production), turned out a product valued at more than four and a quarter billion dollars, and will doubtless greatly exceed that output under normal post-war conditions. The automobile, it should be noted, could not be used with satisfaction until attention was given to the improvement of highways, for the roads that served well enough for horse-drawn carriages and wagons were far too rough for comfortable travel by automobile and wore out speedily under the heavy traffic of motor trucks. Hence, the gratification of one want gave rise to another. This new want, in turn, was met successfully through extensive programs of road building. We have now reached the point where every improvement in the roads leads to a new demand for automobiles, and every increase in the sale of motor vehicles leads to a demand for more or better roads.

The radio came upon us with even more of a rush than the automobile. The explanation may lie in the fact that radio receiving sets are much less expensive than automobiles, so that the desire for a radio is more readily satisfied once it is felt. In any event, it is safe to say that in the case of these two articles (and doubtless many others) imitation has played a large part in the expansion of wants.

Indeed, the prestige which may conceivably be won through the purchase of a given good—say, an automobile—may weigh more heavily than its probable usefulness. It would seem that, in a good many instances, the acquisition of a car—or, at least, of one in a given price class—is not so much a matter of transportation as of demonstrating an ability to “keep up with the Joneses.”

“Conspicuous Consumption.” To purchases of this kind the late Thorstein Veblen gave the expressive name, “conspicuous consumption.” He sought to emphasize the fact that many of the most expensive commodities and services produced in a wealthy country such as the United States are bought by certain individuals chiefly for the purpose of impressing others, or “showing off,” and not because they are expected to yield a great amount of genuine enjoyment in use.

It is conceivable, of course, that the Detroit automobile magnate who spent three million dollars on a mansion which was never occupied, the Philadelphia family that owned fifty-one passenger cars,

and the American heiress who bought a million-dollar collection of emeralds¹ were spending in this fashion because of the gratification their purchases yielded. But there is reason to believe that many expenditures such as these would never be made if it were not possible for the wealthy to dazzle their friends and acquaintances, and the general public as well, by spending on so grand a scale.

An Analysis of Wants. Perhaps the best way to find out what people want in the way of consumption goods is to analyze the expenditures of typical families. The National Resources Committee has made a study of consumer expenditures in 1935-36, based upon data collected from 300,000 American families by the Bureau of Home Economics.² Some of the results of this study are presented in Table 1.

Directing our attention to the incomes of \$5000 or less, which include 97.66 per cent of all American incomes for 1935-36, we note the large part played by food in the family budget. It will be seen, next, that the proportion of the total income that goes for food declines as the income rises, moving from 44.5 per cent in the lowest-income group to 25.9 per cent in the \$4000-\$5000 group. A decline is apparent, also, in the case of housing for about one-half of the income categories to which we are giving special attention; but from the \$1500 to the \$5000 incomes the percentage is substantially stable. Spending for personal care, transportation other than automobile, and reading shows a declining percentage as incomes increase. But the expenditure for household operation, clothing, automobile, medical care, recreation, furnishings, and education increases quite consistently with advances in family incomes up to \$5000; and this trend may be interpreted as a tendency on the part of wage earners to make themselves and their quarters more presentable and more comfortable, and to give increasing attention to health, relaxation, and advancement as fast as their incomes permit.

Changes in Wants. An inquiry into the kinds and quantities of goods bought by the people of the United States over a period of years demonstrates that human wants, as expressed in actual purchases, change from time to time. It is true that the per capita purchases of some staple, low-priced foodstuffs vary but little; the per capita consumption of wheat, for example, has changed only slightly over a

¹ *Philadelphia Record*, July 13, 1942.

² *Consumer Expenditures in the United States, 1935-36*, Washington, Government Printing Office, 1939, p. 85.

HUMAN WANTS AND SCARCITY

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TABLE 1. PERCENTAGE OF TOTAL EXPENDITURES OF AMERICAN FAMILIES AND SINGLE INDIVIDUALS FOR
MAIN CATEGORIES OF CONSUMPTION, BY INCOME LEVEL, 1935-36^a

Income Level	Food	Housing	Household Operation	Clothing	Automobile	Medical Care	Recreation	Furnishings	Personal Care	Tobacco	Transportation Other than Auto	Reading	Education	Other Items
Under \$500	44.5	22.3	9.5	7.6	2.2	3.8	1.0	1.4	2.2	1.7	2.2	1.2	0.2	0.2
\$500-\$750	42.3	20.1	9.8	9.2	3.0	3.6	1.9	1.6	2.2	1.9	2.1	1.2	.5	.6
\$750-\$1,000	40.3	19.2	10.0	9.5	4.2	3.7	2.2	2.2	2.2	2.2	1.9	1.2	.6	.6
\$1,000-\$1,250	37.8	20.0	10.4	9.6	5.7	3.9	2.6	2.7	2.1	2.2	1.7	1.2	.6	.5
\$1,250-\$1,500	36.3	18.4	10.2	10.0	6.5	4.1	3.0	2.9	2.1	2.8	1.7	1.2	.7	.6
\$1,500-\$1,750	34.5	18.4	10.1	10.1	7.6	4.5	3.3	3.2	2.1	2.1	1.6	1.1	.7	.7
\$1,750-\$2,000	32.9	18.5	10.3	10.2	8.6	4.5	3.3	3.5	2.1	2.1	1.6	1.1	.8	.5
\$2,000-\$2,500	31.2	18.3	10.1	10.8	9.7	4.6	3.6	3.3	2.1	2.0	1.6	1.1	.9	.7
\$2,500-\$3,000	29.9	17.9	10.9	11.2	10.2	4.7	3.8	3.3	2.1	1.9	1.3	1.0	1.2	.6
\$3,000-\$4,000	28.1	18.3	11.0	11.7	10.3	4.9	4.2	3.4	2.0	1.8	1.4	1.0	1.3	.6
\$4,000-\$5,000	25.9	18.2	11.4	12.6	11.3	4.9	4.4	3.0	2.0	1.6	1.4	1.0	1.6	.7
\$5,000-\$10,000	23.2	18.5	12.2	12.6	11.5	5.7	4.9	3.2	1.9	1.4	1.4	1.0	1.6	.9
\$10,000-\$15,000	19.7	20.7	11.5	13.6	11.1	4.2	5.8	3.3	1.8	1.3	2.2	.9	3.3	.6
\$15,000-\$20,000	19.2	17.7	11.9	13.6	10.4	5.0	5.6	2.8	1.6	1.1	4.3	.8	5.2	.8
\$20,000 and over	15.2	20.0	13.2	14.3	12.1	6.1	6.4	2.7	1.6	.8	3.0	.8	2.9	.9
All Levels	33.6	18.9	10.6	10.5	7.6	4.4	3.3	2.8	2.0	1.9	1.7	1.1	1.0	.6

^aSource: National Resources Committee.

long period of years. But the consumption of sugar has increased fivefold in a century from 20 pounds a year per capita to more than 100 pounds. The annual consumption of meat, on the contrary, declined from 185 pounds per capita to 160 pounds in a twenty-year period. Edison's invention of the phonograph led to the development of a huge business in record-playing machines, but the demand for this type of instrument declined with the rise of the radio, just as the bicycle yielded ground to the automobile, the cigar to the cigarette, and the "legitimate" stage production to the talking picture. However, the phonograph has again become popular as the result of great improvements in the recording and reproduction of modern and classical music.

The Desire for Leisure. Another human want which has found growing expression in recent years is the desire for leisure in which to do the things one likes to do. Not content to work the twelve to sixteen hours a day required of his predecessor of a century ago, the modern wage earner has been demanding an ever shorter working day so that he may have some hours available for *living* as contrasted with *making a living*. This greater leisure is neither a "commodity" nor a "service," as the economist defines these terms; but it is an important factor in our economic life, inasmuch as time spent in following one's personal bent does not always, by any means, increase the quantity of goods available for consumption, though occasionally it does. More leisure, of course, may be of greater importance than more goods; but an acceptance of this idea does not change the fact that, in general, the more time people spend in leisure the smaller will be the volume of commodities and services available for their enjoyment. When matters are within his own control, the worker may be expected to strike a balance between work and leisure, comparing the enjoyment to be derived from an hour of leisure with the enjoyment to be had from consuming the product of an hour's labor, and on this basis deciding whether to devote the time to work or play.

"Wants" and "Needs." We have seen that imitation and competition have an important place in the creation of wants. The familiar saying, "Our wants are many, our needs but few," appears to have some foundation in fact. Mr. J. A. Hobson, in dealing with types of economic consumption, suggests that three factors—environmental, industrial, and conventional—are discernible in the building up of

desires for commodities and services.³ The *environmental factor* is largely a matter of climate, and affects, for example, one's interest in clothing and shelter in so far as those items are used as a protection against the weather. It also affects one's wants in the matter of food, as is evidenced by a greater demand for heat-producing foods in cold countries than in warm. The *industrial factor* is responsible for differences in the consumption needs of persons engaged in unlike occupations. The laborer who engages in hard manual work requires an abundance of substantial food, and his daily task indicates the use of coarse, durable clothes; the lawyer, on the other hand, needs less food and lighter food, and appearance rather than durability guides his purchases of clothing. The laborer has less need than the lawyer for extensive living quarters; the latter, for example, may require a study to which he can retire in peace and quiet whenever, as sometimes happens with a lawyer, he brings home a sheaf of legal documents over which to burn the midnight oil.

Mr. Hobson apparently believes that, if the environmental and industrial factors alone affected consumption, we should find that needs and wants were virtually identical—that the goods that man wanted sufficiently to be willing to pay a price for them would be the goods he needed to keep himself at the height of efficiency. But the *conventional factor* enters into the situation and drives a wedge between needs and wants, for the conventional factor leads the less wealthy to imitate the more wealthy in the effort to avoid any suspicion of inferiority, and it causes the several members of a given group to enter into competitive consumption—sometimes amounting to conspicuous consumption—in order to prove their superiority. Consequently, many things are bought that do not add to the efficiency of the purchaser.

If we keep in mind Mr. Hobson's notion that one's needs consist of those things that contribute to genuine efficiency, it is not difficult to see that human wants, as expressed in one's purchases, are often far in excess of human needs. But in the present volume we are interested primarily in describing, and not criticizing, economic phenomena. We have drawn the distinction between needs and wants simply to make way for the final observation that as long as imitation and competition play a part in determining man's wants, so long will there be no limit to the expansibility of human wants.

³ J. A. Hobson, *Work and Wealth*, London, George Allen & Unwin, Ltd., 1933, rev. ed., chap. 10.

THE LIMITATION OF GOODS

The multiplication of human wants would have no economic significance if the means of fulfillment were unlimited in quantity. This was approximately the case when man's wants were extremely simple, and when, living in the equatorial regions in small numbers, he was able to secure from nature, with little or no exertion, sufficient goods to gratify his desires. But as numbers increased and wants expanded, it became evident that, unhappily, there was available but a limited quantity of the goods required for the satisfaction of human wants. Man was thus compelled to adopt an economic existence; that is, he found it necessary to economize in the use of certain scarce goods.

The Scarcity of Finished Goods. Very few of the goods needed to satisfy human wants in modern times are provided ready-made by nature. Air and sunshine are among the extremely limited number of desirable things that man, as a rule, is permitted to enjoy without an expenditure of energy. In most cases, the production of useful commodities takes place only when man, using materials and forces provided by nature, makes them serve his ends by working upon them and changing their form. But thus far finished goods have not been able to keep pace with human wants. The volume of physical production has advanced steadily, but human wants have marched along at double-quick. So long as people are hungry, ragged, and homeless, there is no denying that from the group point of view, there is a scarcity of finished goods. Looked at from this point of view, it is doubtful that there have ever been, in the United States, more wheat, more cotton, more shoes, or more automobiles than the people of the country have wanted and could have consumed to advantage. When farmers complain of an overproduction of wheat and cotton, and manufacturers of an overproduction of shoes and automobiles, they have in mind, of course, not the needs of the people for these commodities, but the ability of would-be consumers to buy at prices high enough to cover all costs of production. Only in this latter sense is there likely ever to be an oversupply of an economic good.

The Scarcity of the Factors of Production. The scarcity of finished goods is attributable, in turn, to a scarcity of the factors of production. In other chapters, we shall speak of the four factors of production—land, labor, capital, and business enterprise. But it will be convenient, for the moment, to simplify our discussion by disregarding two of the four, and dealing with only the primary factors, land

and labor. Since capital (as we shall see later) may be resolved into land and labor, and since business enterprise is merely labor of a special type, this temporary simplification of the productive process does not involve us in erroneous thinking. Land, it should be added, must be thought of as including all natural resources, such as soil fertility, mineral deposits, and natural vegetation; and labor, as human effort expended for the purpose of acquiring income.

The Limited Supply of Land. Land and labor are essential to the production of finished goods, but these two factors, as we have said, are limited in quantity. Moreover, the supply of each factor is not of uniform quality, but varies from very good to very poor. Land, for example, upon which man depends for materials of all kinds, is limited in both area and fertility. Our farmers till the soil to provide society with food. But high-grade agricultural land is scarce, and, as more and more foodstuff is required, land that is less fertile must be brought into use; as a consequence, the yield in product, for each day's work, is smaller than before. The miners of coal, iron ore, and other minerals likewise experience a decline in productivity as the years roll by. Natural vegetation such as forests, and wild animal life such as fish and game, which often appear to be inexhaustible when a country is first settled, show signs of depletion after a century or two of exploitation.

It seems clear, then, that physical goods, unlike human wants, cannot be increased indefinitely; indeed, certain materials such as coal and iron ore cannot be increased at all, so far as the total stock is concerned. When, as in the case of agricultural products, the materials are not definitely and permanently limited in quantity, it is often found that an attempt to increase greatly the total amount of product brings a progressively smaller yield *per unit of productive effort*, and it is possible that an absolute limit may eventually be reached.

The Limited Supply of Labor. The situation as regards labor is somewhat different. We do not have here an absolute fixity of stock as in the case of land area. However, *at any given time* there is available a certain quantity of labor, and no more. Labor is like land in that it consists of various types and grades. Some laborers do better work, or more work, than others, just as some acres yield a better product, or larger product, than other acres. Unfortunately, the quantity of extremely productive labor is small, and when recourse is had to labor of limited ability, it is frequently found that the additional

product obtained is scarcely enough to take care of the human wants of the extra workers who are responsible for the increase.

Over a period of time it is possible to increase the quantity of labor by increasing the population. But, though the new workers (after a period of training) constitute an addition to the total quantity of labor available for productive purposes, they add also, and greatly, to the sum total of human wants. It may fairly be questioned whether in modern times an attempt to overcome labor scarcity through a growth in population does not in reality increase, rather than decrease, the difficulties of the situation.

Some of the wants of man find satisfaction in personal services and not in material goods. The physician, the teacher, the actor, and many others who produce no physical commodities are yet greatly in demand because of the desire for the services they render. Here, again, the scarcity of labor is apparent, since many who crave medical attention, instruction, and entertainment are forced to go unsatisfied because of the high cost of these services—a cost which is due to the scarcity of labor in these particular fields of economic activity.

Economic Inequality and Human Wants. In some parts of the world economic goods are so scarce and population is so dense that many of the needs of the masses have to go unsatisfied. China is such a country, Japan is another, and so also, to a lesser degree, is Italy. In these countries, the standard of living is low because the population is large as compared with the volume of production, or—as the advocates of high birth rates might prefer to put it—because the volume of production is insufficient to take care of the needs of the people. Stated in either way, the results of such a situation are equally painful, since they include, for many millions of people, a lack of adequate food, clothing, and shelter, not to mention such things as the educational, recreational, and cultural advantages that help to make life worth living.

But even in countries such as the United States, where the volume of production per capita is large, the fulfillment of human wants is interfered with by the existence of wide differences in incomes. In 1929, a year of great prosperity in this country, the total income of the United States, if divided on a per capita basis, would have given to each family of five an income of \$3125. Since the "minimum health and decency" requirements of such a family, based on calculations of the United States Bureau of Labor Statistics, then cost from \$2000 to \$2500 in various parts of the country, our volume of production

was clearly large enough to provide a fairly high standard of living for all. But the distribution of income was far from equal. The average annual income of male wage earners who had full-time employment was about \$1500, and in some instances this amount represented the total income of the family. A survey of family incomes in Philadelphia in 1928 indicated that "50 per cent of the families have an income of less than \$2000 yearly." To be sure, the feverish economic activity that accompanied World War II raised greatly the *money* incomes of many American families; but the post-war rise in prices (after the removal of price controls that had held them in check fairly well during the war) more than canceled the increased wages of many workers. At the same time, our experience during World War II demonstrated our ability to produce a vastly larger volume of economic goods than we ever turned out in pre-war years. These and similar facts show that many of the needs of large numbers of people go unsatisfied even in this richest of all countries; and they show, further, that the cause lies not in the poverty of the country but in our system of distribution.

We cannot stop here to argue the pros and cons of equality of distribution, but we must consider a little further the significant rôle played by income in determining whether or not human wants are to be satisfied. In a highly organized economic society such as ours, economic wants are satisfied, if at all, through the purchase of commodities and services. Those who have large money incomes, and therefore an abundance of purchasing power, stand a good chance of getting their wants satisfied. Those with small money incomes exercise so slight a control over commodities and services that they must manage to get along on little of this world's goods.

Income, in the form of purchasing power, also directs our productive processes, determining which commodities and services shall be produced; and great inequalities in income mean that some genuine needs of the poor must go unsatisfied while the whims of the wealthy are gratified to the point of satiety. He who bids highest for the scarce factors of production decides how they shall be used; and so, to mention only the factor of labor, carpenters may be set to building mansions for the rich while the poor live in slums, seamstresses to sewing finery for the rich while the poor go in rags, and bakers to making cake for the rich while the poor have no bread. The point that purchasing power controls production is well and amusingly made by Professor Henry Clay, who observes: "If a rich man offers \$500 for

a Pekinese puppy while a poor man is offering \$495 for the education of his children, the productive resources of society under competitive conditions will be devoted to getting the rich man his Pekinese puppy before the education of the poor man's children will be thought of." *

Business Fluctuations and Human Wants. The volume of business transacted in a given country varies from year to year, and in certain industries even from month to month. Hand in hand with these business variations, or fluctuations, go fluctuations in incomes. Workers who are engaged in seasonal occupations which provide full employment at certain times of the year and little or none at other times, are likely to experience a good many ups and downs in the satisfaction of their wants. When they are working full time or overtime, their needs are well provided for, and they may even feel warranted in indulging in some small luxuries. But when the rush season is past and they get only an occasional day of work or none at all, their command over commodities and services dwindles away until they find themselves in dire straits, with little chance of satisfying fully even their urgent needs. There is some tendency to criticize such workers on the ground that they are improvident, squandering their incomes in busy times and making no provision for idle seasons. This criticism is doubtless justified in some instances, but it is weakened by the fact, which has been amply demonstrated, that the total annual earnings of some seasonal workers are not sufficient to enable them to buy even the "minimum health and decency" standard of living which, according to the United States Bureau of Labor Statistics, "does not include many comforts which should be included in a proper 'American Standard of Living.' "

Another type of business fluctuation, and one which affects vastly more people, runs the whole gamut of business activity from depression to boom, and sometimes stretches out over a period of eight or ten years. In times of business boom, human wants as well as mere needs find ready satisfaction, since there is little unemployment and both the wages of workers and the profits of business enterprisers are high. But one has only to live through a great depression, such as the one following the year 1929, to witness the appalling inability of millions to earn for themselves the bare necessities of life in the face of a stoppage of business. It is chiefly the members of the low-income groups who suffer from business depressions, for—as was shown in

* Henry Clay, *Economics for the General Reader*, New York, The Macmillan Company, 1919, p. 385.

1932—as many as a third of the total national labor force may be wholly unemployed, while many of the others are restricted to part-time work. In the “years of the locusts,” as the terrible years of business depression have been called, many are saved from starvation only through relief supplied by the government. Indeed, but few members of society go unscathed in so far as standards of living are concerned, and those few are the very wealthy whose incomes are ordinarily so enormous that, despite the inroads made by a depression and by heavy taxation, they still have their thousands, or even millions, with which to command all the commodities and services they want.

THE ECONOMIC DRAMA

We now have before us the essential elements of the economic drama. There is, on the one hand, man as a consumer of commodities and services, seeking to gratify human wants which appear to be capable of indefinite expansion. On the other hand is a shortage of the material commodities and personal services without which man's wants cannot be satisfied. The scarcity of commodities and services is chargeable to a scarcity of the factors necessary for their production. The material things that man requires can be had only if he cooperates with nature. This cooperation takes the form of economic activity, which is irksome but preferable to enduring a state of want and privation. And the production of services, likewise, involves economic activity.

Both land and labor, the primary factors of production, are scarce. Even if both are utilized to the utmost, it is still impossible for production to keep pace with the multiplication of human wants. Hence, man is under the necessity of economizing in the use of land and labor. If utilized for one purpose, these factors will not be available for other uses. Not being able to produce all he would like to have in the way of economic goods, man chooses those things which seem likely to yield the greatest amount of satisfaction. But, discontented, he looks about for ways and means of obtaining more goods with the limited factors at his command. He turns from herding to agriculture, and the result is an increase in foodstuff. He invents a steam engine or a cotton gin, and thousands of workers are set free for other tasks. But there can be no let-up in his search for improvements, for new wants press hard upon him. The struggle is never-ending. The economic drama is a continuous performance.

In the following pages we shall analyze this drama, examining the cast of characters, the scene in which the action is laid, the motives by which the actors are influenced, and the rewards that are theirs for having learned and played their parts. We shall view the action from several angles, and in somewhat greater detail than in the present chapter; but we shall find that the plot is essentially the same, for it is the endless conflict between the multiplication of human wants and the limitation of goods that are capable of satisfying those wants.

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1. Why is life in the tropics but slightly productive of economic activity?
 2. What effects do conditions in the temperate zone have upon economic life? Be specific.
 3. What, if anything, has migration to do with the increase of human wants?
 4. "As for food, clothing, and shelter, man is no longer content merely to satisfy hunger and protect himself against the elements." Illustrate.
 5. "Imitation has played a large part in the expansion of wants." How?
 6. What is "conspicuous consumption"? How may it be distinguished from normal consumption?
 7. What percentage of all incomes in Table 1 was spent for food, for clothing, for housing, for automobiles, for medical care?
 8. "As the income of a family increases, the percentage of the total family income that is spent for food decreases." Do the figures given in the text corroborate this statement?
 9. What changes, as indicated by actual purchases, have taken place in the per capita consumption of wheat, sugar, meat, phonographs, cigars, and talking pictures?
 10. Mr. Hobson believes that three factors play a powerful part in affecting economic consumption. List these factors, with an illustration of each.
 11. Which of these three factors relate to *needs*, as contrasted with mere *wants*? How would Mr. Hobson define "needs"?
 12. When a farmer speaks of an overproduction of wheat or cotton, does he mean that everyone has all the cotton clothing and all the bread that he can use advantageously? If not this, just what does he mean?
 13. In what respect does a scarcity of labor differ from a scarcity of the factors of production. Why is this true?
 14. What are the *primary* factors of production? In what sense are they "primary"?
 15. High-grade land is limited in quantity. What is the economic significance of this fact?
 16. In what respect does a scarcity of labor differ from a scarcity of land?

17. If a country has *per capita* a very large volume of production, are we justified in concluding that the needs of the population are being provided for adequately? Why or why not?
18. Purchasing power is said to control production. What significance, if any, has this fact in connection with the satisfaction of human wants?
19. Describe the effects of a business depression upon the satisfaction of human wants.
20. State the conflict that arises from man's desire for goods and the manner in which goods become available for use.

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2. Some Fundamental Economic Concepts

The study of economics requires a knowledge of the special sense in which economists use certain words which are a part of our everyday language. In economics, as in other sciences, the thought which a writer aims to convey through the use of a word may be quite different from that connoted by the word in ordinary usage; and so it is important to agree upon the meanings of certain terms when employed in an economic sense. Some of these will be discussed in the present chapter, and others will be left for explanation as they occur in the course of specific discussions.

ECONOMICS

In our introductory chapter we tried to give some notion of the circumstances that impel people to engage in economic activity. This brief account of man's economic struggle provides the material for formulating a definition of the term "economics" that may be expressed in a single sentence. *Economics, then, is the social science that describes man's efforts to satisfy his wants by utilizing the scarce means provided by nature.* Except for the word "science," the definition presents nothing with which we are not already familiar; but this new term is one which must be understood if our approach to the study of economics is to be a sound one.

From the current definitions of science, we may choose that which describes a science as a systematized body of knowledge arrived at and tested by experiment and repeated observation. Thus we have a body of knowledge which we refer to as the science of chemistry, another called the science of astronomy, and so on.¹ A science, by this

¹ It may be noted that some persons prefer to think of science as a *method* rather than as *knowledge* itself. However, it seems best, for our present purposes, to regard the science of economics as a body of knowledge which has, of course, been arrived at through scientific procedure.

definition, may include only those things which have been subjected to the strictest of tests and have passed the tests satisfactorily. If one is a scientist, he lays aside personal prejudice and bias, in so far as this is humanly possible, and deals only with those things which he is confident are true. He aims to examine conditions as they exist, to see things as they really are. He accepts as final only those conclusions to which he is driven by the weight of evidence, that is, by the weight of the known facts.

Goods

The broadest term applied by economists to things that are wanted by people, because they are expected to satisfy human wants, is "goods."

Free Goods and Economic Goods. The word "goods" includes all things that are useful. A thing is *useful*—that is, it possesses the quality that economists call "utility"—when it is wanted or desired by human beings. To the economist, then, the word "utility" is synonymous with "wantedness" and "desiredness." Furthermore, a thing is a good—provided it is wanted—even though its consumption may not actually gratify human desires. Little boys have been known to desire green apples, which (because they were wanted) possessed utility and were therefore a good, despite the fact that their consumption brought pain instead of the anticipated pleasure.

There are some goods, such as air, water, and sunshine, over which man often has little or no control, or which are available in relatively unlimited quantities. Goods of this kind are called "free goods." However, few of the goods in an economic society are free. That is to say, while all goods are desired, most goods are also scarce; and when the element of scarcity is added to that of utility the term "economic good" is applied, provided (as we shall explain presently) ownership in the good can be transferred. Whether goods are free or economic is usually apparent when we know whether or not they command a price. Anything for which we must give something else in exchange is of necessity an economic good. And so all goods that are bought and sold are economic goods. This includes, of course, nearly everything that is transferred from one person to another in our modern society.

Conditions may change in such a way as to convert free goods into economic goods. "When every cottager has a well from which he can draw as much water as he needs, with no more labor than is required

at his neighbor's well, the water in the well has no market value. But let a drought set in, so that the shallow wells are exhausted, and even the deeper wells are threatened, then the owners of those wells can exact a charge for every bucket which they allow anyone to draw for his own use.”² But, drought or no drought, water in a densely populated region ceases to be a free good and becomes an economic good, since great expense is involved in supplying the people of a large city with an adequate supply of pure drinking water. This expense must be borne by someone, or the water will soon cease to be provided, and consequently the users of the water are required to pay for whatever quantity of this good—an economic good, it will be noted—they require. A similar statement may be made about air. Though air is ordinarily thought of as a free good, it is often necessary in great office buildings to provide expensive ventilating systems to insure a steady supply of fresh air, and the cost of this service must be borne by the tenants in the form of higher rents. In air-conditioned railways trains, theaters, stores, hotels, and private homes, this good is no longer on the free list but must be accounted an economic good.

The word “economic” in the term “economic good” is the key to the situation. If we—society as a whole or individual members of society—have to economize in the use of a certain good, then it is obviously an economic good.

So long as goods are free, the question of ownership does not arise, for ownership has no significance when a good is so abundant that every member of society may have all he wants of it, merely for the taking. But whenever a good is scarce, as it must be to qualify as an economic good, ownership becomes a matter of first importance. We have pointed out that goods may easily be classified as free or economic if we know whether they command a price. But goods will command a price—that is, they will be economic goods—only if ownership in them can be transferred. To buy a thing obviously means to acquire ownership (or title) in the thing. Hence, the term “economic good” implies not only *utility* and *scarcity*, but *transferability* as well.

Since the science of economics relates only to economic goods, we may dismiss in a few sentences those things which fall short of being economic goods, by reason of being non-transferable. The skill

² Alfred Marshall, *Principles of Economics*, London, Macmillan & Co., Ltd., 1930, 8th ed., p. 428.

of a physician is a case in point. Skill of this kind clearly has the characteristics of utility (since it is desired) and of scarcity (since it does not exist in relatively unlimited quantities). But it cannot be transferred—though *services* flowing out of the skill may be transferred—and, as a consequence, it is not an economic good. If skill of this kind *could* be transferred, we should not feel as impoverished as we now do by the loss of a great scientist, statesman, artist, or business man. His work may live long after his death, but his personal skill ceases to exist, since it cannot be transferred to another. In like manner, personal ability of all kinds, natural or acquired, is excluded from the category of economic goods, because it lacks transferability.

Human beings, too, fail to qualify as economic goods (in countries that forbid human slavery) because they are not transferable. So far as utility and scarcity are concerned, they are clearly eligible. And if they lived in societies that permitted human slavery, and were themselves members of the slave class, they would be classified as economic goods—and also as wealth, since they have the characteristic of *materiality*, which, as we shall see, is a necessary attribute of wealth. Under slave conditions, then, some human beings have precisely the same economic status as horses, cows, and other domesticated animals. But, in general, they are not economic goods, since society does not ordinarily permit human beings to be owned and as a consequence they are not transferable.

SERVICES

Economic goods are of two main types—"wealth" and "services." The distinction between the two is based upon whether the goods in question are *material* or *non-material*. Economic goods that are material, or concrete, in nature are *wealth*; those that are non-material are *services*. We shall deal first, and briefly, with services.

Services consist of things that possess utility, scarcity, and transferability—but not materiality. When Josef Hofmann gives a concert in Carnegie Hall, or Dr. Chevalier Jackson removes a foreign object from the human body by means of his famous bronchoscope, an economic good is created. Piano concerts and surgical operations unquestionably have utility and scarcity, for they are wanted by human beings and are limited in quantity. They also have the characteristic of transferability, for the music of the pianist passes to the listener and the healing art of the physician to his patient. Perhaps the best evidence that a transfer actually takes place is the willingness

of the recipients to pay for these economic goods. Items of this kind are not wealth, because they lack the attribute of materiality, but this does not mean that they play a minor rôle in satisfying human wants.

Indeed, non-material economic goods, or services, may at times be far more important than material economic goods, or wealth. The doctor who pulls one through a serious illness, the policeman who prevents a robbery or murder, and the lawyer who saves his client from the gallows are performing services so vital that their significance is hard to measure in terms of dollars and cents. Among the producers of non-material economic goods are bootblacks, journalists, barbers, clergymen, soldiers, bankers, teachers, chauffeurs, butlers, actors, and hundreds of other kinds of workers. The products of these workers (who in numbers run into the millions in the United States) are wanted, scarce, and transferable, but they are not material and therefore are not wealth.

WEALTH

Wealth plays so large a part in economic life that economics has often been defined as "the science of wealth." Though we have adopted a broader definition, we shall have much to say about wealth in its various forms.

The Material Nature of Wealth. If we could take an instantaneous photograph of all the material economic goods in the United States at a given moment, we should have a picture of the wealth of the country. This picture would include all of the farming land with its fertility; all of the mineral resources, such as iron ore, coal, and petroleum; all of the factories, together with the land they occupy and the machines they house; all of the stores, with their stocks of goods; all of the great transportation lines; and all of the homes and personal belongings of the people of the country. These and all other material economic goods would have to be in the picture.

There are some who hold that the term "wealth" should include non-material as well as material things, and that there should be added to the material goods which we have described all of the abilities, innate and developed, which are to be found in the people of the nation. These abilities, to which we have already referred briefly, are of great variety. The physical ability of the unskilled worker, the manual ability of the trained artisan, the intellectual ability of professional men, the home-making ability of the millions of housewives, and the artistic ability of creative and interpretative

artists are of unquestioned importance in the economic life of the country. They constitute an invaluable economic asset. Their utility and scarcity are undeniable; but, by definition, they are not wealth, since they are neither transferable nor material. To include them in wealth would involve many complications and would lead to confusion. Hence, we limit our concept of wealth to things that have utility, scarcity, transferability, and materiality.⁸

A Test for Wealth. From what has been said, it is evident that we may determine whether a thing is wealth or not, simply by answering these four questions:

1. Does it have utility; which means, is it desired by human beings?
2. Is it scarce; which means, is the quantity so limited that it is an economic and not a free good?
3. Can ownership in it be transferred from one person to another?
4. Is it material (or concrete) in nature?

The student should have no difficulty with the concept of wealth if he pays strict attention to the definition and to the four test questions that have been suggested. It may be helpful to bear in mind the fact that, in economic parlance, anything that is desired is a *good*; any good that is scarce and transferable is an *economic good*; and any economic good that is material is *wealth*.

Is Money "Wealth"? A common conception of wealth is that it consists of money, but it is best not to regard money as wealth in most of our economic discussion. Money, as we shall later see in some detail, is desired in the main merely because it facilitates the exchange of economic goods for other kinds of economic goods. It is, therefore, really just a means of making it possible to trade goods more easily than could otherwise be done in our complicated economic relations. Money is almost never desired on its own account; and therefore, though it is scarce, transferable, and material, it may be said to possess almost no utility except that which it has by virtue of its power to facilitate exchange.

Money, however, is of several kinds, the chief divisions being metallic and paper money. The remarks that have been made thus far apply particularly to paper money. Metallic money, of course,

⁸ But, though we exclude non-material economic goods from our concept of wealth, we shall not omit them from consideration. Indeed, services will be discussed in our study of "income" in the present chapter.

may be desired for the metal itself. For example, a gold coin melted into bullion would be distinctly useful, since there are many uses for gold apart from its aid in exchange. To the extent to which money is wanted because of its desirability as bullion, it must be considered wealth. But this means that a silver dollar is not a dollar's worth of wealth, since there is not in it a dollar's worth of silver bullion. In like manner, the Federal Reserve note on which are printed the words "five dollars" cannot be accounted five dollars' worth of wealth. It is, rather, a claim upon that amount of economic goods, including both wealth and non-material goods.

It is best, then, in economic discussion, to regard money not as wealth but as a *claim upon economic goods*, which means that, with a certain amount of money in our possession, we are in a position to demand and secure the scarce things which we really want, and these things are commodities and services.

Further "Claims upon Economic Goods." Other items which may be listed as claims upon economic goods are such things as stocks and bonds, patent rights, copyrights, and "good will." *Stocks* and *bonds* are usually certificates of ownership in certain business organizations, through which the holders are enabled to claim a share in the earnings of these organizations.⁴ Stocks and bonds commonly represent physical equipment in a business establishment of some kind. When a share of stock or a bond is purchased, the buyer gives up a certain amount of money with which the seller of the stock or bond is able to buy physical equipment to aid in the operation of his business. This physical equipment, and not the stocks or bonds, is the real wealth.

Patent rights, copyrights, and good will are intangibles through which the holder expects to secure certain privileges not enjoyed by most persons. A *copyright* or a *patent* grants the holder a monopoly privilege which may bring a large return not enjoyed by others. For example, the patent rights on the Eastman "Kodak" make it possible for the manufacturer to sell this article without fear of competitors producing and selling something precisely like it; and in like manner a copyright protects an author's rights in his literary production, or a business man in the exclusive use of a trade name

⁴ Bonds, strictly speaking, do not represent ownership, but are contingent claims which become effective only in the event that the debtor fails to meet certain contractual obligations. The distinction between stocks and bonds will be taken up in detail in a later chapter.

such as "Pepsi-Cola" or a slogan such as "The hat that makes the headlines." Fortunately, there are usually fairly satisfactory substitutes available which keep the monopoly from being a complete one. *Good will* is a sort of prestige which is built up by fair dealing over a period of years, and which, once established, is likely to result in a continuance of trade. Thus some persons have been dealing at the Wanamaker stores for years and, having been satisfied, continue as a matter of course to make their purchases there. Were the Wanamaker management to sell out to another concern, this good will which has been built up could, in part at least, be transferred to the new management and would insure the patronage of some of the former Wanamaker customers.

It may be added that some economists classify as *individual*, but not *social*, wealth such items as we have referred to in the past few paragraphs. A share of Pennsylvania Railroad stock, for example, is said to be wealth to the individual, but not to society. If the right represented by the share of stock were to be destroyed, society would not suffer, but the owner of the share would lose his claim upon that quantity of goods to which his holding of stock now entitles him. This classification is a useful one for some purposes, and serves still further to emphasize the fact that the real wealth consists not of the claims themselves but of the economic goods which they enable the holders of these claims to obtain.

AN ANALYSIS OF WEALTH

In attempting to define wealth, we stated that it consists of a stock of material, economic goods. We may now examine in somewhat greater detail the nature of wealth. Wealth, then, falls into three classifications: Land, capital, and consumers' goods.

Land. *Land* may be defined as natural resources created without the assistance of labor. This includes not only a part of the earth's surface, but rivers and streams of all kinds—though not canals, which are man-made; mineral deposits, such as coal, iron, and oil; agricultural attributes, such as fertility; climatic conditions, including rainfall, sunshine, and temperature; natural vegetation, such as forests and fruits; and wild animal life, such as fish and game. Land is the very basis of man's livelihood. It is the starting point of all economic life. It is, therefore, of the utmost importance that we get a clear notion of what the term means in its economic usage.

Consumers' Goods. Man, coming upon the scene, takes these natural resources and converts them to his own uses. Some of the goods which nature has bestowed upon him are ready for consumption. There is, for example, the fruit which may be picked from a tree and consumed immediately. But most of nature's bounties are in a crude state until they have been worked upon by man. Man's desire, of course, is to transform these natural resources into consumers' goods, for *consumers' goods* are produced goods in the possession of the persons by whom they will be used in the direct satisfaction of wants. They are ready, therefore, to gratify human desires without passing through any further productive processes. A tree in the virgin forest is, from the point of view of the economist, land. When that tree has been felled, fashioned into a chair, and delivered to one who needs it, it is no longer land but a consumers' good. Likewise, a fish in the ocean is land, but cooked and served up to a hungry man it too is a consumers' good. We might, in like manner, name thousands of articles in daily use which had their origin in land and which, through the process that we call "production," have been converted into consumers' goods. But whether they are still in the primitive state known as *land*, or have been graduated to the final stage of their existence where, as *consumers' goods*, they minister directly to the needs of human beings, they fall also, by definition, under the broader heading of *wealth*.

Consumers' goods, it should be noted, are sometimes divided into durable and non-durable goods. *Durable goods* consist of houses, pianos, books, and other things which may be used over a relatively long period of time. *Non-durable goods*, on the other hand, are such things as food, coal, gasoline, and the host of articles which are consumed in a comparatively short time, sometimes with a single use.

Capital. In some cases the process of production is long and elaborate, and involves the use of "capital." *Capital* is produced goods intended for further production. Man has discovered that goods can be produced more economically if, instead of trying to make the consumers' goods directly from natural resources, or land, he makes intermediate goods which economists call capital. In making a chair we require certain tools—an axe, a saw, and a hammer. Since these three things do not directly gratify human desires, they are not consumers' goods but capital; that is, they are produced goods intended for further production. And since they are capital, they are also wealth.

These are extremely simple examples of capital. Our picture of wealth would include many pieces of extremely elaborate machinery which come under this classification of capital. The steam shovel used in excavating, the truck used in transporting goods, the countless machines in metal-working establishments, the printing press in the newspaper plant, the typewriter in the business office—these are but a few of the thousands of kinds of capital that might be listed. All, it will be noted, are goods made by man from natural resources; and all are made not for the sake of the direct gratification of wants, but with the idea of being used in further production. On this account they are sometimes called “producers’ goods”; and we shall use the terms “capital” and “producers’ goods” interchangeably.

Fixed and Circulating Capital. Classifications in the field of economics are numerous. Capital may be classified in several ways with some advantage. It may be divided first of all on the basis of its *durability*, in which case it is called either *fixed* or *circulating* capital. Fixed capital is that which lasts for a long time, which is not consumed in a single process or even a few processes; whereas circulating capital consists of those types of capital which are used up promptly and therefore play but a brief part in the productive process.

A steamship, for example, is fixed capital, and so is a locomotive or a printing press or a typewriter. In all these cases, the capital may be worked steadily for a number of years before it is rendered useless. But the coal that is consumed in the furnaces of a manufacturing plant, the paper that passes through a printing press and becomes a newspaper, and the electrical power that drives much of our industrial machinery are all only slightly durable; and such items, which are consumed in a single process or in several processes, are called circulating capital.

Free and Specialized Capital. Another classification is sometimes made on the basis of the *number of uses* to which capital may be put. If it has a great many possible uses, it is *free* capital; but if its uses are limited, it is *specialized* capital. One of the best examples of free capital is coal. It can be used in any of a thousand industries, and is therefore said to move freely throughout our industrial world. But a shoe-manufacturing machine or a metal-cutting machine is designed for a particular industry. It comes under the heading, therefore, of specialized capital. Coal is equally useful in providing power for shoe manufacture or metal working, but the shoemaking machine

is useless in the metal-working plant, and a steel-cutting device is similarly useless in the shoe factory. Of course, there are many degrees of specialization of capital.

It may be helpful to have before us, in outline form, some of the terms that have thus far been discussed in the present chapter. It will be recalled that man's purpose in engaging in economic activity is to secure those goods which, in addition to free goods, are needed for the satisfaction of his wants. Fig. 1 is an outline of "goods" of all kinds.

Goods:

- I. Free Goods.
- II. Economic Goods:

- A. Services

- B. Wealth:

- 1. Land.

- 2. Capital:

- a. Fixed and circulating.

- b. Free and specialized.

- 3. Consumers' Goods:

- a. Durable.

- b. Non-durable.

FIG. 1. AN OUTLINE OF "GOODS."

INCOME

Wealth is a *stock* of material, economic goods, thought of as existing *at a given moment of time*. Income is very closely related to wealth, inasmuch as it may be described as a *flow* of economic goods *over a period of time*. The distinction in the time element entering into these two concepts should be noted carefully, and it should also be observed that, by definition, services are excluded from wealth but are included in income. A workingman's wealth, then, could be calculated by making an inventory of all his worldly possessions at any moment of time. The list would include, of course, only the material goods to which he holds title. His income could be arrived at by listing all the economic goods, non-material as well as material, that have come into his possession during a given period of time, say a week, a month, or a year. Either list might include such concrete

items as a piano, a suit of clothes, a book, or a loaf of bread; but only the second list—the list representing income—could include services, such as a boat ride, the extraction of a tooth, or a motion-picture performance.

The wealth of the United States includes all of the material, economic goods that belong to the people of this country. The value of this wealth, in the year 1940, was estimated at roughly \$300,000,000,000. Farm land, mineral resources, factory buildings with their equipment, stores with stocks of merchandise, railway and motor lines, public works and private homes, and personal effects of all kinds helped to make up this enormous stock of wealth.

The Flow of Income. A nation's stock of wealth, then, consists of all its material possessions at any one time. Though it includes finished goods that are ready to be consumed, it is made up chiefly of land, factory buildings, and machinery, which are being used continually by labor of many kinds in the production of still more finished goods or of more factories and machinery. Thus, flowing from this stock of wealth over a period of time, say during the course of a year, are large quantities of material and non-material goods which minister, directly and indirectly, to our comfort and enjoyment, and which the economist calls income. If we accept the estimate that this flow of material and non-material economic goods was worth \$75,000,000,000 in 1940, we have some notion of the relationship between the wealth and income of the United States in that year.⁵

However, not all of the national income is consumed during the year. What actually happens in the United States is that something like 85 per cent of this income is used up annually, and about 15 per cent takes the form of machines and other productive instruments, and *durable consumers' goods*, instead of being consumed immediately. Thus every year witnesses an increase in the quantity of wealth in the United States, and we find that perhaps some \$12,000,000,000 worth of material goods was added to our stock of wealth during the year 1940. We shall later investigate, in some detail, the way in which the wealth of the country is built up through savings from income.

⁵ Comparable estimates for the boom year of 1929 were: Wealth, \$360,000,000,000; income, \$90,000,000,000. We have avoided, in this chapter, the use of wartime and post-war data on national wealth and income, giving instead pre-war figures which may be supposed to be more nearly normal than the inflated data of 1941–48.

Changes in Wealth and Income. Individual wealth and income, and national wealth and income, are sometimes large and sometimes small, since they reflect as a rule the degree of prosperity which the individual or the nation is enjoying. Prolonged business depressions interfere seriously with the satisfaction of human wants because they usually lessen and sometimes destroy entirely the individual or family *income* that makes economic goods obtainable. But individual *wealth* also varies. When the wheels of industry slow down or stop turning altogether, those to whom slack work or total unemployment comes are often compelled to live upon wealth instead of income. And if unemployment is very long drawn out, there will be in the families affected but little if any replacement of worn-out clothing and house furnishings. Even wealth of a more permanent nature may be impaired or destroyed. It is notorious that housing deteriorates speedily in time of depression—peeling paint and leaking roofs are neglected, broken windows and faulty plumbing go unheeded; to cite a striking illustration from the year 1933—a year of tragically widespread unemployment—thousands of tenants have been known to tear out the inside woodwork of their homes and burn it in the absence of other fuel. Factory buildings and other kinds of industrial equipment also go to rack and ruin when business comes to a standstill, for it is often impossible for the enterprisers to borrow the funds needed for repairs, and in any case it seems to some people like sending good money after bad to invest further in a business that gives no promise of paying dividends for many years to come, if indeed at all. Governments, too, in the face of reduced revenues, sometimes allow roads, buildings, and other government property to fall into decay, and thus decrease the total wealth of a country.

However, a decrease in wealth is sometimes less extensive than it seems to be, as may be seen by comparing estimates of wealth in this country in 1929 (a year of great prosperity) and 1934 (one of the worst years of the greatest of depressions). The total wealth of the United States was estimated, in 1934, at \$180,000,000,000, and a comparison with the estimated \$360,000,000,000 of wealth in 1929 might seem to indicate that 50 per cent of the country's wealth had disappeared during this five-year period. But figures are sometimes deceptive; a large part of this apparent loss was merely a decline in the *value of wealth* and not a loss of wealth itself. For reasons which we shall later study at some length, the prices of nearly all kinds of

goods decline during business depressions. Much real estate, for example, lost fully half of its value in the course of a year or two during the period we are considering. This drop in value was unquestionably a serious matter to the individual who owned a piece of property and wanted to dispose of it, for it probably meant selling for much less than the property had cost. But to society as a whole a loss of this kind has little significance. If the property was in as good condition in 1934 as in 1929, its usefulness to society was just as great, despite the fact that its value had been halved. A dwelling that has not deteriorated physically provides quite as much shelter when its value is \$10,000 as when it would have brought \$20,000 on the market. An acre of land that produced forty bushels of wheat fed just as many mouths in the depression year of 1934 as in the boom year of 1929; even though its value declined from \$50 to \$25. And if an owner of property was forced to sell at deflated prices, then what was "hard luck" for him was "good luck" for the buyer, and, from the point of view of society as a whole, the gain of one canceled the loss of the other. Consequently, while we must count as a loss in both individual and social wealth whatever reduction depression brings in the quantity and quality of the country's stock of material goods, we may console ourselves somewhat with the knowledge that, when expressed in terms of value, the loss appears to be much larger than it really is.

In like manner, a reduction in national income from \$90,000,000,000 in 1929 to \$45,000,000,000 in 1934 did not mean that the people of the United States had only half as much income in the way of economic goods—commodities and services—in the latter year as in the former. For the reduced money income of 1934 would have bought considerably more than half as much economic goods as the larger money income of 1929, for the reason that there was a decline in general prices during these years. Of this sort of thing we shall have much to say in later chapters, but we may add at this point, by way of comparison, that the national income of the United States in 1934, when translated into commodities and services, was approximately 70 per cent as great as that of 1929.

It is equally true, of course, that the seemingly enormous increase in both national income and national wealth, which took place between 1934 and the artificially stimulated war year of 1944 (and continued for several years after the close of the war) was not so huge an increase in *prosperity* as the figures might suggest at first

sight, for the reason that prices rose greatly during this period and also because the goods represented by these figures were, to a large extent, instruments of destruction instead of goods calculated to satisfy normal human needs.

Money Income, Real Income, Psychic Income. The term "income" requires a little further analysis. Economists commonly speak of three kinds of income. These are money income, real income, and psychic income. *Money income* is readily understood. In this country it consists of the dollars that a person receives over a period of time. *Real income* is not money, but the commodities and services which one is able to buy with his money income. The distinction between money income and real income is quite important, since there is much confusion in the mind of the average person on this subject. A large money income does not necessarily mean the ability to buy much economic goods, for if prices are high a money income, even though large, will purchase relatively few things. Nor does a reduction in money income necessarily mean a corresponding reduction in real income, as we noted in the preceding paragraph. If, then, we are speaking of a person's income and wish to refer to the standard of living he is able to maintain with that income, what we have in mind is real and not money income. This is but another illustration of the fact that money in itself is of little use, and attains significance only as it procures for us the things we want.

The third type of income, *psychic income*, has relatively slight importance for the student of economics. It is not susceptible of scientific treatment. Psychic income means the actual enjoyment or gratification which comes to a person through the consumption of commodities and services. The pleasing taste of food on the palate and the sense of elevation which comes through hearing fine music are examples of psychic income. Inasmuch as the amount of enjoyment contributed by economic goods differs with the make-up and temperament of the individual consumers, there is no way of measuring psychic income; and it is mentioned only to make clear the fact that the satisfaction of human wants by means of commodities and services is, after all, the goal of all productive processes.

Individual Gross and Net Income. One further classification of income may be made. When a business man mentions his total receipts for a given period, say a year, he is referring to *gross income*. But when he deducts from this amount all of the expenses incurred in connection with the conduct of his business, what is left consti-

tutes *net income*. For many purposes this deduction is essential. If, for example, a small shopkeeper wishes to ascertain how well he is faring by reason of being a business enterpriser, he must subtract from his gross income not only all money he has expended, but also a payment for any land, labor, and capital of *his own* that he has used in the enterprise; only then will he know how great a net income he is reaping from the operation of his business.

A good is anything that is desired by human beings.

Free goods are goods that are so plentiful that they do not command a price.

Economic goods are goods that exist in such limited quantities that they command a price.

Land is natural resources created without the assistance of labor.

Capital (or *producers' goods*) is produced goods intended for further production.

Consumers' goods are produced goods in the possession of the persons by whom they will be used in the direct satisfaction of wants.

Wealth is a stock of material, economic goods.

Income is a flow of economic goods over a period of time.

1. Define "goods," "free goods," "economic goods," "wealth," "income," "land," "capital," "consumers' goods."
2. When, in an economic sense, does a thing possess each of the following characteristics?
 - a. Utility.
 - b. Scarcity.
 - c. Transferability.
 - d. Materiality.
3. Give several examples of "free goods."
4. How is an increase in population likely to affect the "free goods" of a community? Illustrate.
5. Distinguish carefully between "material" and "non-material" economic goods.
6. Distinguish between "wealth" and "services."
7. By what test may one determine whether or not an economic good is "wealth"?
8. Are human beings "wealth"? Explain.
9. "The true wealth of a nation is the abilities of its people." Comment.
10. To what extent is money "wealth"? On what ground do we exclude it from this category?

11. What is "good will"? Why is it not regarded as "wealth"?
12. Distinguish between "individual wealth" and "social wealth."
13. Into what three classifications may "wealth" be divided?
14. How does the economist's use of the term "land" differ from the everyday use of this word?
15. In what manner is "land" converted into "consumers' goods"?
16. Name at least five articles that may properly be classified as "capital," and explain why they may be so classified.
17. What attribute of capital is under consideration when the terms "fixed capital" and "circulating capital" are used?
18. What characteristics of capital is emphasized in the use of the terms "free capital" and "specialized capital"?
19. Illustrate the fact that the ownership of specialized capital may involve greater risk of loss than the ownership of free capital.
20. Study carefully the outline of "goods" given in Fig. 1.
21. Distinguish between "wealth" and "income."
22. What was the value of the wealth of the United States in 1929 and 1934, respectively? The value of the income of the United States in those years?
23. What is the percentage of the yearly "non-consumed income" of the United States? What happens to this income?
24. How do you account for the fact that there was a decline in the wealth of the country between 1929 and 1934?
25. Distinguish between *a loss of wealth* and *a loss in the value of wealth*. Which of the two affects more seriously the prosperity of a country?
26. Define "money income," "real income," and "psychic income."
27. Distinguish between the money income and the real income of the United States for the years 1929 and 1934, respectively.
28. What are "gross income" and "net income"?

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3. Basic Characteristics of Capitalism

An institution, according to Webster, is "anything forming a characteristic and persistent feature in social or national life or habits." An examination of the economic life of a highly industrialized country, such as the United States, reveals the existence of a number of institutions which may be regarded as fundamental to the operation of the capitalistic system. In some cases they are the incentives that induce men to engage in arduous tasks; and, again, they are certain rules or principles according to which the economic game is played. We shall describe briefly several institutions which appear to be basic characteristics of capitalism.

SELF-INTEREST

The Meaning of Self-Interest. The principle of self-interest has a prominent place in every society. *Self-interest is a higher regard for one's own welfare than for the welfare of others.* It means, in short, "every man for himself and the devil take the hindmost." The Biblical injunction to do things "in honor preferring one another" is not very generally heeded in actual practice. In war, in politics, in religion, in law, in "high society," in teaching—indeed, in almost every field of human activity—are evidences of the desire to get ahead even at the expense of others. The self-denying person is the exception rather than the rule.

Self-Interest in Economic Life. It is in the arena of economic struggle that the principle of self-interest finds widest expression. Adam Smith emphasized, as a strong motive to economic activity, "the natural effort of every individual to better his own condition"; and it is easy to find examples of self-interest manifesting itself in the exercise of the acquisitive instinct, which is the urge to get for oneself those economic goods that seem likely to contribute to one's

enjoyment. Since economic life concerns itself wholly with things that are scarce—that is, with commodities and services that are desired by many but are not sufficiently plentiful to constitute free goods—it often happens that, in seeking one's economic self-interest, one deprives another of goods which that person is anxious to secure.

The principle of self-interest is in thoroughly good repute in the economic world, if only those who practice it act in conformity with certain established rules and regulations. The acquisition of wealth by theft or robbery is outlawed; but it cannot be denied that some business men have become rich through charging extortionate prices for scarce, necessary goods, and have even themselves (through monopoly control) brought about the scarcity by artificial means. Workmen likewise have not hesitated to charge as much for their services as they have been able to force from their employers; and sometimes these high wages have been won through the agency of a "closed union," which is, again, a form of monopoly control.

The "Economic Man." Recognition of the significance of self-interest as an economic motive gave rise to the concept of the "economic man," who might be described as a mythical creature in whom the acquisitive instinct has been grossly overdeveloped, and the other forces that commonly influence human conduct have shriveled up and disappeared. The economic man, as he has sometimes been pictured, is an individual who in all his actions carefully calculates the economic consequences of this move or that, trying always to add to his possessions. His course of action may be described briefly as selling at the highest and buying at the lowest possible prices. In making his purchases he aims always to secure the maximum of satisfaction; that is, he never spends a dollar for any commodity or service if an equal expenditure for something else would bring him greater satisfaction. He does his best, also, to avoid dissatisfaction. If, for example, our economic man is a workman to whom either of two jobs is open, he will be expected without question to choose the one that, for each dollar of income, entails the least work, since long-continued work is irksome and therefore productive of dissatisfaction.

Objections to the Concept. Many pages of print have been used to prove that the economic man does not exist. The objectors, in some cases at least, have seemed to have in mind an economic man who not only sought, but actually attained, the maximum of satisfaction and the minimum of dissatisfaction in all of his dealings.

Thus defined, the economic man is certainly imaginary, for there are so many obstacles in the way of attaining this ideal that one may safely say that it is unattainable by mortal man. To make the choices necessary to complete success would require infallibility of judgment.

Whether it is better to pay the neighborhood druggist a quarter for a tube of shaving cream, or walk a dozen blocks and get it for 17 cents at a cut-rate store, is perhaps a small matter; but thousands of such questions would have to be answered by the economic man in the course of a year, and every question would involve the knowledge of many facts, and a fine balancing of each against the others, before a decision could be reached. It is unbelievable that in these thousands of judgments the maximum of satisfaction and minimum of dissatisfaction would always be realized. How—to indicate but one difficulty—could the economic man gain full knowledge of all necessary details without consulting the advertisements? But how, after reading the conflicting advertisements of competing producers, could he attain the maximum of satisfaction in the purchase of (say) an automobile, a radio set, or a package of cigarettes, unless he possessed the wisdom of a Solomon!

Modifications of Economic Self-Interest. We may abandon, then, as beyond the bounds of reason, the concept of a person who actually attains the maximum of satisfaction and the minimum of dissatisfaction in all his economic dealings. And even if we picture the economic man as one who merely *seeks* always to further his economic self-interest, it seems probable that we shall have difficulty in locating him. For there are few persons, if any, who value material things above all else. Not only do men often fail to achieve economic self-interest to the fullest, but they even appear sometimes deliberately to perform uneconomic acts. Thus, people continue to patronize the corner grocer though a new chain store sells more cheaply; one buys from a friend on terms somewhat less favorable than those offered by a stranger; and a prominent industrialist gives up a \$350,000 job to accept a government post at a dollar a year.

Self-interest, then, while probably the strongest incentive to economic activity, is not the only one; nor is it equally strong in all individuals. There is such a thing as working at a job, not primarily for the sake of financial return, nor yet because it carries great honor or distinction, but because the work in and of itself is interesting or appears to be socially worth while. Quite often several motives—

selfish, or altruistic, or both—apparently combine to bring about a given course of economic action. "One person may compete against another for a position because he covets it, not for the sake of money, of which he may have as much as he wants, nor for the sake of power, for which he may not care, but in order that he may play the part which rightly or wrongly he esteems himself fitted to play. . . . People choose their work with some feeling of its value in the world, and perhaps with a half-heroic intention of making it more valuable, but at the same time they look forward to advancing their material interests—which include the interests of families and possibly of friends."¹

Of course, there are certainly family relationships into which economic self-interest does not enter, or in which its practice is at least greatly softened. A parent may prefer wealth and fame for a child rather than for himself or herself. A child may deny himself something he greatly desires in order to contribute to the support of a needy father or mother. But these evidences of self-sacrifice do not ordinarily extend beyond a limited circle. Indeed, a man's desire to look after the needs of those near and dear to him may be the very incentive for the adoption of grasping methods when dealing with those outside his immediate family group. It is not uncommon for a man to compete fiercely with those working in the same field, not because he desires wealth for himself but because he wants his wife and children to be amply provided for.

Whether the goal is immediate personal self-interest, or a limited self-interest that denies one's own self in matters affecting relatives or friends, the effect upon economic society is largely the same. That is to say, there is, with some exceptions, a tendency on the part of all engaged in economic activity to compete with others in the effort to draw, each in his own direction, as large a part of the national income as possible. Hence, while denying the existence of a creature who, economically speaking, "as a roaring lion, walketh about, seeking whom he may devour," it seems reasonable to believe that the bulk of the economic acts that are observable on every hand are in fairly strict accord with the principle of economic self-interest.

A well-established economic theory states that the intelligent monopolist does his best to secure the greatest possible total net return. So also does the intelligent business man who operates under com-

¹ Sydney Chapman, *Outlines of Political Economy*, London, Longmans, Green & Co., Ltd., 1923, p. 150.

petitive conditions. To this end he buys his materials, power, and labor at the lowest possible prices, and sells the finished goods for the most they will bring. If, as often happens, he keeps the *unit* price low, it is in the hope of selling large quantities and thus realizing the maximum *net* profit. The tendency to buy at low and sell at high prices is well-nigh universal. Few are so well-to-do that they buy without regard to price; the popularity of bargain sales is evidence of this fact. And the laborer, artisan, or manager, in selling his services, seeks ordinarily to get as high a wage or salary as can be had, as is proved whenever strikes are called to force wage increases. In the buying and selling of both commodities and services, then, economic motives are readily discernible.

Self-Interest and Economic Progress. This principle of self-interest has played an important part in economic progress. It is apparent that one may achieve importance not only by performing deeds of valor or creating works of art, but also by accumulating a great fortune. Hence, in addition to desiring economic goods for the gratification they provide, men have long sought to amass wealth so that it might win for them the admiration of their fellow men. To acquire the riches that bring prestige, business men labor long and diligently, launch forth into new fields of economic activity, search for improved methods to make their businesses more productive, and in other ways contribute to economic advance. Self-interest may also, of course, lead to gross injustice, as in the exploitation of the natives of "backward" areas by the business men of "progressive" countries, who, in their greed for oil, rubber, and other raw materials, have sometimes been brutal in their dealings with native labor.

PRIVATE PROPERTY

But the mere acquisition of economic goods does not fully satisfy the demands of self-interest. Most persons want to hold fast to the goods they acquire, or at least to retain complete control over them until such time as these goods may be used up or disposed of in other ways.

Private Property and Its Limitations. Consequently, there has grown up, over a long period of years, the institution of private property. *Private property is the exclusive right of a person to control an economic good.* It guarantees an individual the right to use and control such goods as he may acquire, without interference from

others, and even to dictate how his possessions shall be distributed after death. There are, to be sure, some restrictions upon the uses to which one's goods may be put, but these restrictions, as a rule, are not particularly burdensome.

Usually there are prohibitions against the use of goods in ways that would be likely to interfere with the rights of other persons. If, for example, a man should choose to destroy his own house by setting fire to it, this privilege would be denied him by the state if his action were likely to endanger the lives or goods of others. Moreover, it is customary for the state (or other political unit) to exact from a property owner, in the form of a tax, some part of his goods (or income from the goods) to meet the expenses of government.

The Protection of Property Rights. However, in an industrialized and relatively democratic country, there is almost always a strong tendency to safeguard carefully the rights of property. Not only is an owner authorized to protect his possessions himself, but society as a whole, through its police power, undertakes to guarantee that he shall not be deprived of his goods by force. And the government itself is forbidden to appropriate private property except by due process of law.

The institution of private property protects those who *have* against possible encroachments of those who *have not*. Were it not for this protection, self-interest, in the field of economic endeavor, would probably express itself in a struggle for the things that afford *immediate enjoyment* in consumption, for there would be little or no point to devoting time and effort to the acquisition of goods that might be wrested from one by a stronger individual or by a greedy government.

Usefulness of the Institution of Private Property. Indeed, economic progress was long hampered by the fear that men might not be allowed to reap where they had sown. Agriculture, the earliest of permanently located industries, did not come into its own until there was reasonable assurance that a man's crops, when they had matured, would not be appropriated by others through force of arms. Manufacturing and commerce likewise have lagged behind in times and countries that have failed to provide, by means of a strong, well-established government, a guaranty that the rights of property would be respected.

The institution of private property, in making this guaranty, encourages the accumulation of surplus goods and thus aids in the development of an industrial order, for through goods being saved

instead of consumed a stock of capital is built up. This capital takes the form of buildings, machines, tools, and other aids to production; and, as we shall see in the next chapter, the effectiveness of production is in large measure dependent upon the existence of instrumental capital of these kinds. Since capital is essential to efficient production but will be accumulated only if the owner is protected in his use and control of it, the institution of private property, by providing the necessary protection, makes an important contribution to social welfare.

FREE ENTERPRISE

Private property supplies an incentive to economic activity, and free enterprise keeps open the road to economic opportunity. *Free enterprise is the right of a person "to make what things he likes, and as he likes," or to enter any trade or profession.* This right, if it functions properly, makes it possible for a person to engage in whatever economic activity he may choose, without interference from the state or from individuals. Self-interest, then, impels a man to look about until he finds a line of work that strikes him as profitable; the institution of free enterprise permits him to enter the field he has selected; and the institution of private property insures that he shall be allowed to enjoy the fruits of his ability and industry.

The Beginnings of Free Enterprise. Prior to the Industrial Revolution, a man had little choice in the matter of his occupation. Under the manorial system, the vast majority of workers were farm laborers who were, in a very real sense, tied to the soil. Being born on a particular manor, they were obligated in various ways to the lord of the manor, and were not free to sever this relationship. Their obligations were well established by custom, and ordinarily a son would fall heir to the status—frequently a very humble status—of his father.

Even had the workers been free to come and go at their own pleasure, there were, in those early days of industry, but few distinct trades or businesses which a man might enter; and those few were guarded jealously by organizations of craftsmen and merchants who were then, as now, anxious to avoid undue competition. The introduction of the factory system of manufacture weakened the ties that had bound the peasant to the land, and the demand for factory operatives opened up new occupational possibilities which have been broadening ever since. Thus the control of the individual's eco-

nomic activity by custom or law gave way to a substantial degree of freedom of individual enterprise.

Government Restrictions upon Free Enterprise. The transformation was not a sudden one, but has stretched out over the years. Even as recently as the early days of the nineteenth century the rights of labor had but scant recognition. There is a recorded case, for instance, of American employees who were ordered by the courts to work for their employers at a specified wage and were penalized for failure to comply with the order. Here, obviously, was a violation of free enterprise.

Today the law does not presume to interfere in such matters, though even now there are certain requirements to be met before a person is allowed to enter some professions, notably law and medicine. Plumbers, electricians, and other skilled artisans are likewise required, in some states, to pass examinations in order to secure licenses permitting them to ply their trades. Ostensibly these measures are adopted to protect the public in the purchase of important services which, in the absence of regulations, might be performed badly by poorly trained practitioners. But these are the very grounds on which the medieval guilds sought to justify *their* restrictive measures.

It should be said, in justice to those who champion present-day restrictions upon free enterprise, that exclusions are usually made on the basis of the failure of candidates to measure up to certain established requirements. This means that, while it is deemed unsafe to admit into some fields of economic activity any person who cannot pass the necessary tests, the door is open to all who possess the requisite ability. This is quite a different matter from forbidding the rank and file to leave the economic station in life to which they have been assigned through accident of birth. Under the medieval system the peasant boy was destined to remain a peasant. In a régime of free enterprise, despite the restrictions that have developed, he might reach a position of eminence in the business world or in one of the learned professions.

If we were to call the roll of men of prominence in this country today, we should doubtless find that a large percentage, and possibly a clear majority, had risen from the ranks to their present places of wealth and power. This is particularly true in the business world, for our Carnegies, Rockefellers, Wanamakers, Fords, and other economic leaders have, probably more often than not, emerged from

almost total obscurity and, under the institution of free enterprise, have pushed forward to positions of economic greatness. Such careers would be out of the question in a country that denied its citizens the privilege of choosing freely their avenues of economic activity.

Natural Limitations to Economic Success. It is scarcely necessary to deal at length with governmental obstacles to free enterprise, such as are created through the granting of franchises, patents, and copyrights. These, indeed, may quite properly be regarded as incentives rather than hindrances to economic progress. A franchise is awarded presumably to the individual or concern that seems most likely to render the best service at the lowest price; and patents and copyrights are, in effect, prizes offered by society to those who invent useful appliances or originate clever ideas. Here, again, the road to opportunity is open to all who can qualify, and not merely to a selected few.

The question of natural ability is one of great significance, of course, and the lack of special talent essential to success in a particular occupation is nowadays more likely than government interference to be the obstacle to freedom of enterprise. Unfortunately for the handicapped and possibly for society as a whole, deficiencies in natural ability are difficult and often impossible to overcome. However, the institution of free enterprise does not pretend to insure success in an economic undertaking. All it does is to say, in effect: "The field is open to you and to all who care to enter the contest. Your success or failure will depend upon your ability to compete with others who, like you, are seeking their economic self-interest."

Free Enterprise and Equality of Opportunity. Our much discussed equality of opportunity, therefore, means merely that whoever will may enter the lists, but each must supply his own equipment. This equipment, in the economic struggle, consists not only of natural endowments, such as physical stamina, mental agility, sound judgment, and so on, but of capital, or instruments of production, as well. (We are referring, for the moment, to those who aspire to play the enterpriser's rôle.) Of course, if one possesses the essential personal qualities to an unusual degree, he *may* be able to borrow the funds needed to put him on a par with those whose capital is supplied through family connections. But then, again, he *may not*.

It is apparent, therefore, that genuine equality of economic opportunity does not exist. It is impossible of attainment so long as the instrumental factor of production, capital, is unevenly divided among

the contestants. It is impossible, again, so long as the training needed is expensive, and therefore out of the question for some who wish to compete. And even if these artificial barriers were removed, there would still remain the natural barrier of differences in personal abilities to prevent the competitors from starting out on a strict basis of equality. Whether equality of economic opportunity is desirable need not occupy our attention at this time. The point made here is that free enterprise, which many appear to regard as synonymous with equality of opportunity, in reality does nothing more than to open the contest to all comers, some well and others poorly equipped for the struggle.

FREEDOM OF CONTRACT

Freedom of contract is a basic assumption of a capitalistic economy. *A contract is an agreement of economic significance which is enforceable by public authority.*² It is "a two-sided act, expressive of agreement," and involves an offer and an acceptance.³ . . . It must be entered into without force or undue influence, and "the matter agreed upon must be both possible and legal and . . . not contrary to the public policy."⁴

The Prevalence of Contracts. Since contracts arise whenever offers are made and accepted, the institution of contract touches, directly or indirectly, the life of everyone. Owners sell houses, and landlords lease apartments; housewives buy furnishings, clothing, and food; people with dependents take out insurance; those who need ready money borrow from banks or finance companies; dramatic stars accept parts in plays; tourists book passage on ocean liners; and each of these many thousands of transactions constitutes a contract—which may be written, verbal, or implied—because each involves an offer and an acceptance.

Free enterprise and freedom of contract are closely related. Indeed, free enterprise would have little meaning if people were not free to enter into contracts. The institution of free enterprise says, in effect, that the owner of land, labor, or surplus funds may (within reasonable limits) use these agents of production as he likes, in his endeavor to gain economic success. He may decide to lease his land, lend his

² Richard T. Ely, *Property and Contract*, New York, The Macmillan Company, 1914, p. 562.

³ *Ibid.*, p. 567.

⁴ *Ibid.*, p. 569.

funds, and hire his services to others. On the other hand, if he chooses to be an enterpriser, he may require the use of land, labor, and funds which belong to other members of society. In either case, there must be understandings as to rates of rent, wages, and interest, and the periods of time over which the arrangements he makes are to hold. And if he is to function as an enterpriser, he must be free to sell his commodities or services to would-be buyers.

Enforcement of Contracts. With countless deals of these and other kinds being made daily, it is highly desirable not only that the terms of the agreements be clearly understood, but also that they be enforced by a disinterested agency. This agency is the state, operating through the courts. The courts recognize the provisions of contracts as legal obligations, and undertake to enforce them.

It is sometimes argued that labor contracts are not enforceable against wage earners. In theory, such contracts are enforceable, but in practice the courts do not attempt to enforce the actual performance of specific personal services. However (in addition to the willingness of many workers to live up to their obligations), the pressure of public opinion, in the case of labor unions, and the possibility of court injunctions, suits for damages, or other penalties, in the case of especially important workers, serve to reduce the number of violations of labor agreements. It should, perhaps, be added that the weight of public opinion plays a part in the enforcement of contracts of all kinds, and not merely those which, like labor contracts, are difficult to enforce at law.

The contract "not only unites the present and the future, but the past, present, and the future. The continuity of our economic life demands security and stability. We have only to think of what contract relations are, to realize this—barter, sale, credit, letting, loans, services, deposits, domestic services, agency, partnership, professional services. . . . We see, then, the vast economic significance of contract. Our economic relations are based largely on contract, and in its absence might would prevail. It is very largely through contract that our wealth is accumulated and our share of the national dividend comes to us."⁵

COMPETITION

When we come to the study of value, we shall employ the word "competition" in a strictly technical sense. But in our present dis-

⁵ *Ibid.*, pp. 578, 579.

cussion we have in mind the more common, dictionary definition of the term, which usually runs about as follows: *Competition is the act of striving for something that is sought by another at the same time.*

The efforts of men to advance themselves economically are shown in their competition with one another. Competition is one of the most pervasive of all economic forces, and is found in all fields of economic endeavor. It is, indeed, the basis of most economic theory; for the science of economics assumes the existence of competition for the most part, and in its absence some of our leading economic laws would be meaningless.

Social Value of Competition. Competition acts as a sort of regulatory force over the actions of men in their attempts to make economic headway. Self-interest may prompt a man to charge an extremely high price for whatever he has to sell, whether commodities or services; but the existence of competition forces him to modify his charge, and the consumer benefits accordingly.

Under competitive conditions, the sellers of economic goods, in their endeavor to secure trade, bid against each other and thus force the price down. For there is always present the fear that, if too high a price is maintained, the commodity or service will go unsold. In like manner, self-interest may suggest to a buyer that he offer an exceedingly low price for something he desires, but the competitive bids of many buyers have the effect of forcing the price up. Through the operation of these two forces of competition, one tending to lower and the other to raise prices, a balance is finally reached.

Prices thus arrived at (as we shall note in detail in our study of value) tend to be, in the long run, just high enough to cover costs of production; that is, they tend to be just sufficient to enable the business man to pay all necessary expenses, including a salary for his own productive effort. If the term "fair price" is ever permissible, it is surely in connection with a price of this kind, for the efficient business man is certainly entitled to a price that will enable him to meet all legitimate expenses of production; but it may well be argued that society should not permit him to have more.

Competition in Selling. We have already seen that there is competition among sellers who are anxious to dispose of their wares at the highest prices obtainable, and competition among buyers who are desirous of securing these goods, but at the lowest possible prices. These two groups are susceptible of further analysis. Com-

petition among sellers, for example, may relate to *like*, *substitute*, or *unlike goods*.⁶

The type of competition among sellers that is most easily recognized is that which takes place among those dealing in *like* goods. Thus the General Motors Corporation, with Chevrolet cars to sell, competes sharply with the Ford Company offering the Ford "V-8" and with the Chrysler organization selling the "Plymouth." Those who have watched this particular example of marketing have noted a type of severe competition that is present, also, in the sale of clothing, ice cream, bread, and countless other commodities.

Competition among sellers of *substitutes* may be equally keen. Old-fashioned ice refrigerators and modern mechanical refrigerators perform the same general function, that of producing and maintaining a low temperature which aids in the preservation of food. To combat the substitution of the newer device for the orthodox refrigerator, the manufacturers of ice have spent much money on campaigns of advertising. The sale of oil-burning and gas-burning furnaces likewise constitutes a threat against an established business—the anthracite coal industry. The coal dealers have attempted to meet the challenge with advertisements that set forth the advantages of coal, and the disadvantages of oil and gas. So much for competition among sellers of substitute goods, which include items of food, clothing, shelter, transportation, entertainment, and so on.

The desire to dispose of *unlike* goods also results in competition. Since the average person cannot afford to buy everything he might like to possess, he is often obliged to choose from several possibilities the one that appears likely to bring the greatest satisfaction. He may be able to finance a new automobile or a summer cruise, but not both. Consequently, automobile dealers vie with steamship companies, each side seeking to emphasize the superiority of the commodity or service it has to offer. A long list of possible conflicts among sellers of unlike goods might be drawn up. One of the most striking examples of competition of this kind was that which developed some years ago between the sellers of cigarettes and sellers of candy. It is likely that few suspected the possibilities of conflict in this connection until a leading tobacco concern began to urge the public to use cigarettes instead of sweets, and the manufacturers of

⁶ This useful classification is borrowed from Raymond T. Bye, *Principles of Economics*, New York, F. S. Crofts & Co., 1941, pp. 50, 51.

candy retaliated by advertising the real or imaginary evils of cigarette smoking.

Competition in Buying. In buying, as in selling, competition is a force to be reckoned with. Probably nowhere is competition among buyers seen more clearly than at a public auction, with its strictly limited supply of a given commodity (consisting sometimes of but a single unit) and a number of would-be purchasers. A situation of this kind often results in very spirited bidding, with the price going up and up until finally the prize is carried off by the highest bidder.

The effects of competitive bidding are most clearly apparent in a case such as we have described, where there is a limited supply; but, in a less spectacular way, the same sort of process is followed whenever goods are bought and sold. For all economic goods are, by definition, both desired and scarce. If the good in question is very scarce, the bidding by buyers will be brisk and there will be a "seller's market," that is, one in which the seller holds the advantage. If, on the other hand, a relatively large quantity of the good is available, there will be a "buyer's market," with prospective purchasers unconcerned and even indifferent, since they feel that they will surely be able to obtain as much as they require. But the competition between buyers, whether brisk or dull, has the effect of raising prices to a greater or lesser degree, just as the competition between sellers tends to bring prices down.

Competition for the Agents of Production. Manufacturers and other enterprisers compete not only for the patronage of consumers, but for the agents of production as well. Thus there is a continuous demand for land, labor, and capital, which may be desired by business men in similar industries or in businesses that are widely different, since enterprisers in all fields require land, labor, and capital; and as they bid against one another for the use of these agents the prices they must pay (in the form of rent, wages, and interest) are forced up.

But the owners of the agents are anxious to keep them employed and, rather than have the agents idle, they may, by a process of underbidding, force down the prices of these factors of production. Here again, as in the actual sale of goods, competition among buyers tends to send the price up and competition among sellers to drive it down. As we have already explained, the price finally paid is the result of an adjustment between these two tendencies.

Interference with Competition. Competition, like self-interest, is found in all walks of life, but seldom in the pure, undiluted state. We noted, in discussing the economic man, that however diligent one may be in seeking his self-interest, the limitations of human knowledge and action render complete success improbable, if not impossible.

Similarly, a lack of knowledge of conditions and circumstances beyond one's control result in imperfect competition. Workers, for example, are anxious to secure high wages. If, then, the wages of carpenters are higher in Baltimore than in Atlanta (living costs being the same), we should expect carpenters to move from Atlanta to Baltimore and compete for the high-priced jobs in the latter city. As a matter of fact, there are often fairly wide differences in the wage scales of two or more cities, without any appreciable movement of laborers from one to another. The reason may be ignorance of the situation on the part of the workers, or an indisposition to move from an established abode even for a gain in income. Thus, the lack of knowledge on the part of buyers and sellers, and imperfect mobility of commodities and services, prevent competition from working with complete exactness in the several branches of economic life.

Agreements and combinations of various kinds are also responsible for restricted competition. "Gentlemen's agreements" between those in control of great business interests have often interfered with the realization of a perfectly competitive price. "People of the same trade seldom meet together, even for merriment and diversion, but the conversation ends in a conspiracy against the public, or in some contrivance to raise prices," wrote Adam Smith in 1776. And this was a century and a quarter before the advent of the famous "Gary dinners," at which leaders in steel manufacture are said to have agreed, year after year, upon the price to be charged for steel in the United States during the next twelve-month period. The combination, under a single management or policy-forming body, of the important producing units in the oil, sugar, and tobacco industries has at times had a similar effect. Most powerful of all, in stifling competition, is a condition of complete or almost complete monopoly, such as was once exercised by the Aluminum Company of America, which had captured a very large percentage of the country's supply of raw materials essential in the manufacture of aluminum goods. Complete monopoly, of course, is the absence of competition,

with but one buyer or one seller, as the case may be, in the market; while perfect competition is a situation in which there are many buyers and many sellers and a complete absence of combination among the members of either of these groups.

COOPERATION

But not all is competition in the world of economics. Cooperation also plays a part, and sometimes an important part, in economic relationships. Whenever it appears better to men to work in accord rather than in conflict, cooperation is likely to take the place of competition. We have already seen that deliberate cooperation, as in the case of steel magnates agreeing to uphold a monopoly price, may constitute an interference with competition. Other examples of organized cooperation that lessens the effectiveness of competition may be found in the trade associations of business men, the trade unions of workers, and the marketing cooperatives of farmers and fruit growers. We shall look further into organized cooperation in a later chapter, confining our present discussion to cooperation of a somewhat different kind.

There is being practiced continually a type of cooperation which is seldom recognized as such by those who take part in it. Indeed, our modern specialization, with every man confining his efforts to a very limited field of work, would be unthinkable without cooperation. The teacher may devote himself to his classes and his books only because others are cooperating by providing him with food, shelter, and clothing. The miner produces only coal, and depends on the cooperation of the farmer to supply him with food. The farmer tills the soil and raises his crops, but looks to the carpenter to build his barn, the machinist to make his implements, and the barber to cut his hair. In any modern factory, cooperation may be seen to excellent advantage, for present-day industry is dependent upon the various types of workers, each with his particular function in the productive process, joining together intelligently and willingly in turning out economic goods.

Examples of cooperation between producers and consumers are apparent on every side. I decide to take a trip to Chicago, and find a host of people anxious to cooperate in making the journey as easy and pleasant as possible. The telephone company cooperates by putting me in touch with a taxicab company. The taxi people cooperate by delivering me promptly and safely to the railway station.

The railroad cooperates by having the train ready for me at a convenient hour, and by providing not only transportation but dining and sleeping accommodations. Dinner time arrives, and I discover that my wants in the matter of food have been anticipated. Not only is food available, but an effort has been made to cooperate with me to the extent of supplying the kinds of food most likely to appeal to my tastes. Upon arriving in Chicago, I discover that I am expected, and a hundred hotels are ready to cooperate by providing comfortable quarters.

It is not correct, of course, to intimate (as we have done) that these several acts of cooperation are of a personal nature. On the contrary, they are distinctly impersonal, since those who help to make my trip a pleasant one do so not from personal good will or friendship for me, but from the very practical motive of self-interest. "It is not from the benevolence of the butcher, the brewer, or the baker, that we expect our dinner, but from their regard to their own interest," says Adam Smith. We find, then, in every phase of business life the desire of producers to discover and minister to the needs and wants of others—to cooperate, in effect—so that they, the producers, may secure an income through rendering the desired service.

ECONOMIC HARMONY

Adam Smith and other economists have defended freedom of economic action on the ground that it furthers the economic interests not only of individuals but of society as a whole. It was Smith who made the famous statement that a man, in seeking his selfish economic advancement, is "led by an invisible hand to promote an end which was no part of his intention." This end, of course, is the economic well-being of the community, which Smith felt was best served by a policy of governmental non-intervention in economic affairs.

An Example of Economic Harmony. There is a mixture of truth and untruth in this so-called "doctrine of economic harmonies." It is probably true that the late Henry Ford, while piling up his millions, contributed much to the satisfaction of human wants. The argument to this effect would run about as follows: Henry Ford became rich because millions of people, over a period of some forty or fifty years, showered their dollars upon him. But people in general are not altruists. They are, on the contrary, anxious to get the most for their money; and the fact that they spent their money with Mr. Ford and not with someone else is proof that he gave them more for

their dollars than they could get elsewhere. Hence, society benefited by Ford's selfish endeavors. To summarize: The institution of free enterprise allowed Mr. Ford to choose the business into which he would go. He decided that he could make most by manufacturing automobiles. Events showed that he chose wisely, for he made a huge fortune; but in making it he was "led by an invisible hand to promote an end which was no part of his intention"—that is, he was led into being something of a public benefactor.

Unfortunately for the doctrine of economic harmonies, the argument does not always work out so neatly. Indeed—to pursue a little further the case of Henry Ford—it would be hard to prove that his business life was guided by purely mercenary motives, for human motives are always difficult and sometimes impossible to fathom. It is quite possible, then, that Mr. Ford had in mind throughout his career not only the acquisition of wealth, but also the winning of a great name as a captain of industry; or he may have been motivated primarily by the desire to show that his "horseless carriage," which was the cause of so much mirth in the days of its infancy, could be made the basis of a gigantic American industry. Finally, even if all should grant for the sake of argument that Mr. Ford's business activities yielded great social benefits, how can we know that his benefactions have been mere by-products of his money-getting—as they must have been if they are to confirm the doctrine of economic harmonies—and not the prime object of a man who, like Abou Ben Adhem, sought to be written down as "one that loves his fellowmen"?

Shortcomings of the "Invisible Hand." But if it is difficult to show that the economic good works that occur are always the incidental outcome of economic self-interest, it is still harder to prove that social good inevitably follows every attempt of men to win individual economic success. In other words, the doctrine of economic harmonies does not always work; the "invisible hand" lets a good many people slip by on the road to wealth, without collecting the toll—in the form of social service—that the doctrine of economic harmonies says must be paid by all who pass that way. Whenever a monopolist, in order to secure an artificially high price for his product, deliberately restricts the quantity of the good the public is allowed to consume, he is outwitting the "invisible hand." Whenever a merchant palms off a shoddy article on an unsuspecting customer and charges the price of first-class goods, he is disproving the inevitability of the doctrine of economic harmonies. And whenever the

maker of a patent medicine sells a worthless concoction to suffering humanity and thus delays the scientific treatment of disease, he is so far from promoting the "end" to which Adam Smith referred that he is in truth an enemy of the people.

These and a thousand other examples that might be cited show that economic harmony does not always prevail. It still seems highly desirable that a man shall ordinarily be permitted to choose his life work, for in so doing he is likely to find the job he can do best and with most enthusiasm and enjoyment. But we have long since recognized the need for governmental "interference" with monopoly, for laws penalizing the misbranding of certain kinds of commodities, and for regulation of the sale of some of the more dangerous drugs and narcotics. The movement has a long way to go before the public will be adequately protected against these unscrupulous, unsocial individuals whose manner of doing business seems to indicate direct descent from an "economic man" of the most vicious type. There has been need, then, for a revision of the doctrine of economic harmonies, and Professor Carver has restated it in these words: "*Under proper government interference and control*, men are led as by an invisible hand, to promote the public interest while trying to promote their own."⁷ Just what constitutes "proper government interference and control" is debatable, but if the italicized phrase is given a sufficiently liberal interpretation, this modernized version of the doctrine of economic harmonies appears to be essentially sound.

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1. What is the meaning of "self-interest"? Of "economic self-interest"?
 2. How is economic self-interest related to the limitation of goods described in Chapter 1?
 3. Give several illustrations of the existence of economic self-interest.
 4. Describe the "economic man."
 5. On what grounds has the concept of the economic man been attacked? Are these objections valid?
 6. What evidence is there that economic self-interest is often modified in actual practice? Be specific.
 7. Give several illustrations (not taken from the text) of buying in a cheap market and selling in a dear one.
 8. "This principle of self-interest has played an important part in economic progress." Explain.
 9. What is the meaning of "private property"?

⁷ T. N. Carver, *Essays in Social Justice*, Cambridge, Harvard University Press, 1922, p. 109.

10. Is the institution of private property hedged about by restrictions of any kind? Explain.
11. Why, in the absence of this institution, might people confine their economic efforts largely to the production of non-durable goods?
12. "The institution of private property . . . aids in the development of an industrial order." How?
13. Define or describe "free enterprise."
14. Contrast the individual's opportunity to choose an occupation under the manorial system, with the "freedom of enterprise" of today.
15. Do not governmental restrictions (such, for example, as state bar examinations for lawyers) destroy our pretensions to freedom of enterprise? Explain.
16. Is free enterprise synonymous with equality of opportunity?
17. Define "contract."
18. Discuss the relationship between free enterprise and freedom of contract.
19. Comment on the enforcement feature of the contract.
20. Competition has the effect of forcing prices up, and also of driving prices down. Explain this seeming contradiction.
21. Give an example (not taken from the text) of competition between sellers of (a) *like*, (b) *substitute*, and (c) *unlike* goods.
22. What is a "seller's market"? A "buyer's market"?
23. Business men "compete not only for the patronage of consumers, but for the agents of production as well." Explain, with an illustration.
24. Competition is seldom perfect. What conditions prevent perfect competition from being realized?
25. What is "complete monopoly"?
26. When may we expect to find planned economic cooperation instead of economic competition?
27. Describe several types of organized economic cooperation.
28. "There is being practiced continually a type of cooperation which is seldom recognized as such by those who take part in it." Explain, with illustrations.
29. If most cooperation is impersonal in nature (as in reality it is), what motive impels individuals to engage in such cooperation?
30. What is the central idea of the doctrine of economic harmonies?
31. What reasons are there for questioning the validity of this doctrine?
32. In what respect is Professor Carver's restatement of the doctrine of economic harmonies an improvement over the "invisible hand" concept of Adam Smith?

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4. *The Nature of Production*

Production is usually defined by economists as the creation of utility. We have already described utility as being synonymous with wantedness and desiredness. It is, therefore, *that relationship of a good to a human being which is expressed by saying that the good is desired by the human being.*¹ It follows that anything that is done in the way of increasing the desiredness of an economic good must be regarded as production.

Most of the activities that take place in our economic society are directed toward this end. The problem of economic life is, in the main, to change land—that is, natural resources—into finished goods, and to place those goods in the hands of the persons who will consume them.² Then and then only do they become consumers' goods. We may emphasize this point by quoting a British economist who in this statement is rebutting the notion, once current, that some types of industrial workers—such, for example, as those engaged in the sale and transportation of goods—are unproductive. He says: "It is a useful, if trite, maxim that production is not completed until the commodity, whatever it be, is in the hands (or on the table) of the consumer; and if we ask for bread, the ploughman, the miller, the baker and the baker's van-boy . . . all alike minister to our needs. What is wanted in this life is the right thing in the right place at the right time, and all who contribute to this so desirable end are economically, on this point at least, doing the same kind of thing."³ In this work of production there are activities of many kinds; and

¹ This definition of "utility" is the one adopted by the Committee on Economic Accord in 1934. Cf. *Handbook of Accepted Economics Definitions, Principles, and Statements*, New York (236 Wooster Street), W. I. King, p. 8.

² The term "goods" must be understood to include services, or non-material goods, as well as commodities, or material goods. Many services, of course, require in their performance very little use of natural resources but much labor.

³ Alexander Gray, *The Development of Economic Doctrine*, London, Longmans, Green & Co., Ltd., 1931, p. 106.

we may profitably examine the several types of utility, the creation of which constitutes production.

IMPORTANT TYPES OF UTILITY

Form Utility. One type of utility that comes promptly to mind is *form* utility. The creation of form utility consists of taking raw materials, or partly finished goods, and making them more desired by changing their form. The miner who digs coal, the lumberer who hews trees into logs, and the fisherman who catches a supply of sea food are taking natural resources and putting them into a more desirable form. The farmer likewise creates form utility when he produces grain and meat for food purposes, cotton and wool for clothing, and so on.

But the creation of form utility is most clearly apparent in the field of manufacturing. Iron ore is mined, then smelted into pig iron, later made into steel, and finally fashioned into high-grade tools. At each step of this process an advance is made, and therefore at each step there is the creation of further utility. Every person engaged in the task of changing iron ore into a fine cutting tool (or any other commodity) is, therefore, a producer. The same is true in every field of manufacture. Cotton is spun into yarn, woven into cloth, and the cloth manufactured into clothing; and each of these processes constitutes a creation of form utility. Building materials are fashioned into houses, and here again form utility is created.

Indeed, so obvious is it that manufacturing ordinarily means the creation of form utility that some business men and others are inclined to think of the workers in manufacturing plants as producers—because they *make* things—but to overlook the fact that the manager in the office, and the clerks and typists, are producers just as truly as the day laborers and skilled artisans. All of these persons make some contribution to the production of the commodity that is turned out by the plant. And all persons—whether hand or brain workers, whether poorly or well paid—who are engaged in manufacturing, in agriculture, or in the extractive industries such as mining, fishing, and lumbering, are creators of form utility.

Place Utility. Another type of utility is that created by transporting goods from one place to another. Wheat in Nebraska and oranges in California are of no use to would-be consumers in Pennsylvania or New York until they have been transported to the state in which they are to be eaten. This transfer of goods from one region

to another brings into being a new utility which is known as *place utility*. The tremendous growth in the transportation of passengers and commodities throughout the world by water, rail, motor vehicle, and air lines, is an indication that utility is created by the movement of people and goods from place to place. The enjoyment afforded the people of the United States through the use of sugar from Cuba, coffee from Colombia, rubber from Brazil, and diamonds from South Africa, must be credited in large part to those who have developed our modern systems of transportation, by means of which these commodities from distant lands have been made available for us.

Possession Utility. But the manufacture and transportation of an economic good do not necessarily complete its production. A Hamilton watch in the showcase of the jeweler is not fully "produced," since it is more desirable, and more desired, in the hands of a person who has no timepiece than in the jeweler's shop. Consequently, the *sale* of a watch, or of any economic good, creates a new utility which is known as *possession utility*. It is correct to say, therefore, that many persons who are engaged in salesmanship are producers quite as much as are those who make a good in the first place.

We must include also, in the creation of possession utility, much of the advertising which is carried on so extensively today. It is estimated that our annual expenditure for advertising in the United States runs well over three billion dollars. Advertising in 1946 included the following items: newspaper, \$964,000,000; direct mail, \$279,000,000; magazine, \$430,000,000; radio, \$489,000,000; outdoor, \$86,000,000; business paper, \$178,000,000; farm paper, \$36,000,000; and miscellaneous, \$655,000,000.⁴ One writer estimates that in this country the magazines get 53.4 per cent, the newspapers 74.1 per cent, and the radio approximately 100 per cent of their total income from advertising. Whenever, through the medium of advertising, the desiredness of a good is increased—which means that it is now more wanted than it previously was—the advertising may (with the exception noted below) be called the creation of possession utility.

This is the case, despite the fact that to many persons much of the advertising of today is definitely objectionable. An analysis of twelve of our leading magazines made a dozen years ago—and there is no reason to suppose that the situation has changed—showed that a large percentage of their advertising consisted of appeals to fear, sex desire, and emulation in conspicuous consumption. "The whole ob-

⁴ *Printers' Ink*, March 28, 1947, p. 34.

ject of research," according to a statement credited to the research director of a great automobile concern, "is to keep everyone reasonably dissatisfied with what he has in order to keep the factory busy in making new things"; and a similar statement might be applied to much of our advertising. Nevertheless, if advertising increases the desiredness of goods, it is creating possession utility and is thus furthering production.

The exception to which we referred above has to do with such advertising as increases desiredness in one spot only to reduce it in another. Examples may be seen, on every hand, of advertising that is designed to persuade consumers to buy one particular brand of a good in place of another brand to which they have become accustomed. Indeed, in many of the current radio "commercials" this purpose of advertising is quite undisguised. "Then why not shift to *Blank* brand?" we are asked time and again by radio announcers. We are urged to smoke Lucky Strikes in place of Camels, and Camels in place of Old Golds, and Old Golds in place of Lucky Strikes. It seems probable that advertising of this kind, in the main, simply transfers one's cigarette allegiance from one brand to another without any net increase in *possession* utility. Of course, advertising of this type may conceivably result in initiating a non-smoker into the joys—and, *mirabile dictu*, the health-giving benefits!—of cigarette-smoking, in which case we may suppose that there has been an *increase* and not merely a *shift* in desiredness, and that the advertising is therefore productive.

But even if this sort of advertising does not add to the desiredness of the good that is being extolled, and therefore does not constitute the creation of *possession* utility, it does render a service which is desired by the buyers of the advertising—or it would not be purchased—and therefore (by definition) comes under the heading of utility. It is probably best to classify such advertising as *service* utility, which will be described in a later section.

Time Utility. Another type of utility is *time* utility. Certain individuals are engaged in the storage of goods. Storage consists of holding goods from a time when they are little wanted until another time when they are more desired. Owners of grain elevators in the "wheat belt" store millions of bushels of wheat at the height of the harvest season, and hold this wheat until there is a greater demand for it. Cold-storage operators put away eggs in the summer when they are plentiful and cheap, and hold them until winter when they are scarce

and high. In doing this, the operators of storage houses add to the desiredness of the eggs, and thus create utility—time utility. The speculators in the commodity exchanges render a somewhat similar service, but their activities will be dealt with in a later chapter.

Service Utility. Finally there are persons engaged in creating *service* utility. This classification has to do with those who render personal service instead of dealing in material goods. The lawyer, the doctor, the preacher, and the teacher do not sell material goods, but a personal service consisting sometimes simply of advice or information. Since services such as these are desired, the persons who render them create utility, and consequently fall within the classification of producers.

Our business and social relations are facilitated by the adjustments made in our courts; hence, lawyers create utility when they give advice and plead cases. Physicians who assist in maintaining the good health of individuals and of society in general are likewise creators of utility; and the same may be said for ministers and other advisers who bring comfort, consolation, and peace of mind to members of society. Teachers, in arousing in their students an interest in things intellectual, are helping them to achieve a fuller enjoyment of life; and in doing this they create utility quite as much as though their work were distinctly vocational and aimed directly at the training of skilled workers or business experts. Tragedians who make us weep, and comedians who make us laugh, are engaged in production because they bring diversion and entertainment into a world in which there is much need for this sort of thing.

There are, in addition to these, our governmental officials, from the President of the United States down to the humblest public servant, all of whom help us carry on the orderly conduct of our business life. There are also persons engaged in handling the risks of industry, such as insurance men, who create service utility. The list is by no means complete, but it may easily be enlarged by the reader, who will experience no difficulty in finding examples not only of service utility but of utility of the other types we have discussed.

Difficulty of Classifying Utility. The classifications that have just been made are not necessarily hard and fast. Like most classifications, they are made largely on an arbitrary basis; and it may be confessed that it is impossible to classify satisfactorily all types of producers in a highly developed economic society. One difficulty is the classification of such workers as stenographers, bookkeepers,

office boys, and watchmen. Students who experience difficulty in finding a ready classification for these producers usually wind up by sticking them into the pigeonhole marked "service utility," which seems to provide a convenient catch-all for workers who do not fit easily elsewhere. A more logical arrangement, however, is to classify them on the basis of the type of utility that is being created by the concern for which they work. Thus, a stenographer in the employ of the Baltimore and Ohio Railroad is creating place utility since her services contribute to the movement of trains from place to place. A bookkeeper who works for the Bethlehem Steel Company is, then, a creator of form utility; an office boy at Macy's department store in New York is a creator of possession utility; and a watchman who guards a giant grain elevator in Minneapolis is a creator of time utility. Perhaps the chief benefit to be derived from classifying economic activities is to impress upon ourselves the fact, already noted, that there are various kinds of production—since there are various types of utility being created—and that anyone who does anything which in any real sense of the term results in additional utility is a producer. The production of a commodity begins with the raw material and does not end until the finished good is in the possession of the person by whom it is to be consumed. Everyone who adds to its desiredness is a producer, though many who help do so *indirectly*. Service utility, it may be noted, is usually created by the producer rendering some service *directly* to the consumer. But there are exceptions. For example, I may never find it necessary to call an officer of the law to protect me from attack, and yet I would certainly not, on that account, deny the utility of an organized police force.

THE FACTORS OF PRODUCTION

The productive process, as we have seen, consists of converting raw materials into goods and getting these goods into the hands of the persons for whom they have utility. This process may be illustrated graphically by a series of concentric circles, such as we have in Fig. 2. The innermost of these circles is intended to represent land, which, it will be remembered, includes all natural resources. The outermost section is labeled "consumers' goods," and here we find those commodities which are ready for use and in the possession of the ultimate consumer. Between these two stages in the productive process is a whole series of intermediate stages, indicated in the diagram by

dotted circles. All of this space between land and consumers' goods is occupied by capital, or producers' goods.

Land. The importance of *land* in production has already been noted and need scarcely be emphasized further. It is a wholly indispensable factor, for without it there could be no production. Land is *natural resources created without the aid of labor*; and it is obvious

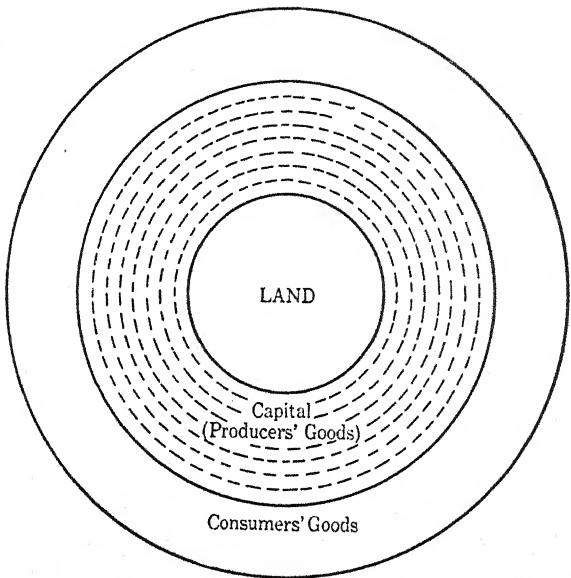


FIG. 2. THE PRODUCTIVE PROCESS.

This process consists of converting land into consumers' goods, with the aid of labor and capital (or producers' goods). (Production also includes, of course, the creation of non-material goods, or services.)

that these natural resources, such as soil fertility, mineral deposits, natural vegetation, water-power resources, and so on, are absolutely essential to the conduct of modern industry.

The true productive significance of the land assets of the United States cannot be demonstrated statistically, but a few figures may be given to show how richly this country has been endowed in the way of natural resources. The total land area of the United States is about two billion acres, of which approximately one-half is in farms. This farm land and the buildings on it are valued at about fifty billion

dollars. Though we originally had some 816,000,000 acres of forests, our present total forest area is about 630,000,000 acres, of which 460,000,000 acres constitutes commercial forest area.

We are using our mineral resources rapidly, the value of minerals produced in the United States annually totaling nearly five billion dollars. The most important minerals, in total value of product, are coal, iron ore, and petroleum. Our stocks of fish and game, originally very extensive, have been dissipated by wasteful exploitation. The water-power resources of the country are of great economic significance, and a controversy has been raging as to whether they shall be developed under private or public ownership.

Labor. But natural resources do not have maximum utility until they have been worked upon by man. Hence we say that *labor* is an essential factor in production. Labor is ordinarily defined as *human energy expended for the purpose of acquiring income*. This definition rules out those activities of man which are recreational in nature. A man is a laborer only when the tasks in which he engages are carried on for the sake of the real income derived, and not for the pleasure incidental to the undertaking.

Here, as in so many instances, we find it difficult to classify individual items with absolute exactness. According to our definition, Miss Alice Marble was not a laborer when she played championship tennis as an amateur, but she became a laborer the moment she entered the field of professional tennis in 1940; yet she probably played as hard in one case as in the other. Of course, a college football or baseball player would be a laborer if for his playing he were receiving a scholarship of some kind. It is almost impossible, then, to make exact classifications, but for all practical purposes the student of economics can decide in each given case whether a man is a laborer or not.

In a highly industrialized country, such as the United States, labor is employed in a multitude of ways. Government figures show that the number of gainful workers in this country—the term “gainful workers” including all who are engaged in occupations which bring in a money income—totaled about sixty million persons in 1945. In economic terminology, these workers constituted the labor supply of this country.

Approximately 16 per cent of these persons worked on farms. Some 12 per cent were engaged in trade or finance, and 31 per cent in industry of various kinds. Eighteen per cent were at that time in the

armed services, 19 per cent in non-military service industries, and the remainder in miscellaneous industries and services.

Capital. *Capital* may be defined as *produced goods intended for further production*. This definition sets it apart from land (that is, natural resources), since the latter is not, in the economic sense, "produced," but is a free gift of nature. Capital includes goods that are designed for ultimate consumption; that is, partly finished goods in process of production which, though they are no longer in the raw state, have not yet progressed sufficiently to be ready for consumption, and consequently are not consumers' goods. Capital includes, also, goods that are sometimes termed "instruments of production," such as factories, machines, and tools. Capital of this kind is not destined to satisfy human wants directly, but serves only as a means of producing further consumers' goods. A very large amount of the wealth of every modern industrial society is composed of capital, which is clearly marked in the intermediate section of Fig. 2.

It is not possible to give a complete or strictly accurate idea of the stock of capital in a great industrial country, but estimates of the National Industrial Conference Board are of some assistance in this connection. Manufacturing machinery, tools, and so on, in the United States, were estimated in 1940 to be worth \$11,250,000,000; farm implements and machinery, \$1,596,000,000; livestock (a form of capital), \$5,024,000,000; railroads and their equipment, \$26,000,000,000; and private waterworks, \$12,597,000,000.

The first three of these five items are unquestionably capital, as we have defined the term; but railway companies and private water companies doubtless include in their valuations certain items of non-capital, such as land, franchises, and so on. A number of deductions would have to be made, therefore, before our picture could be considered correct. Additions also would be necessary, for the figures given above do not include the value of factory buildings, or of "improvements" such as the clearing, draining, and fencing of agricultural land. At best, then, the above estimates are merely suggestive of the large quantity of capital essential to the conduct of present-day economic projects.

An examination of the world about us shows that we are regularly turning immense quantities of natural resources into goods that cannot give direct enjoyment to human beings, but do so in an indirect or roundabout way. No direct enjoyment is derived from the operation of an oven in a baking establishment. Consequently, it could not,

by any stretch of the imagination, be called a consumers' good. However, an oven is distinctly useful in that it contributes to the production of bread, which is, of course, a consumers' good when it comes into the possession of hungry human beings.

Capital, then, is one of the most important factors of production. It is generally recognized as an essential part of any highly productive economic order. Even the extreme economic radicals of today have but little fault to find with the use of capital; and few, if any, would suggest seriously that we do away with its use and revert to the old-time hand method of manufacture. If we did this, we should all suffer by reason of having less goods to consume. The socialists believe, however, that capital should be owned and controlled collectively, and not by private individuals as is the case in capitalist economies.

The Business Enterpriser.⁵ The fourth and final factor in production is the *business enterpriser*, who is *the person that assumes the ownership and hence the risks of business*. The enterpriser has to pay for the use of the land, labor, and capital employed in his business, and hopes to receive for the goods produced an amount larger than his total expenses. If he does so, he reaps profits. But he may have to take losses. Therefore, he is clearly a risk-bearer.

We must emphasize the fact that *ownership*, and not *management*, is the distinguishing characteristic of the business enterpriser. A business executive who commands a salary of \$100,000 a year is not an enterpriser but a high-grade laborer who is paid wages (or salary), unless he is at the same time an owner, or part owner, in the undertaking. On the other hand, a wealthy man who buys an interest in a business is by virtue of that purchase an enterpriser, though he takes no part whatsoever in the actual operation of the business. By the same token, every person who owns one or more shares of stock in any business corporation is, to the economist, a business enterpriser. By buying stock, he becomes a part owner of the business, and in accepting the responsibilities of ownership he becomes, by definition, a business enterpriser. The corporation itself, since it is a group of stockholders, is a business enterpriser, as we have defined the term (though it is more often called a business *enterprise*) and this is true regardless of its size.

Since some business concerns have hundreds or thousands of part owners, there are many more *enterprisers* than *enterprises*. But there

⁵ Many writers use the term "entrepreneur" instead of "enterpriser," and some English economists prefer the word "undertaker."

are also, in this country, a great many business enterprises, in the sense of separate and distinct business units. The reason is that many a business unit is owned by a single individual. Many men carry on small manufacturing or merchandising businesses, or engage in business on their own account as farmers, lawyers, engineers, physicians, and so on. These enterprisers on a small scale are so numerous that the National Industrial Conference Board estimates that there are more than nine million business enterprisers in the United States. We have more than six million farm owners and one and one-half million commercial retailers, and these two groups account for a very considerable percentage of the total number of enterprisers given above. Not all of this large number, it need scarcely be added, are successful. Many men attempt to carry on businesses without possessing the requisite ability. They sooner or later fall by the wayside, and their names go to swell the lists of bankruptcies in this country.

DIRECT AND INDIRECT PRODUCTION

Production is indirect or direct, depending upon whether goods are produced with or without the use of capital. A famous description of direct and indirect production, which has never been surpassed for interest and clarity, is from the pen of a great Austrian economist, Böhm-Bawerk. It runs as follows:

A peasant requires drinking water. The spring is some distance from his house. There are various ways in which he may supply his daily wants. First, he may go to the spring each time he is thirsty, and drink out of his hollowed hand. This is the most direct way; satisfaction follows immediately on exertion. But it is an inconvenient way, for our peasant has to take his way to the well as often as he is thirsty. And it is an insufficient way, for he can never collect and store any great quantity such as he requires for various other purposes. Second, he may take a log of wood, hollow it out into a kind of pail, and carry his day's supply from the spring to his cottage. The advantage is obvious, but it necessitates a roundabout way of considerable length. The man must spend, perhaps, a day in cutting out the pail; before doing so he must have felled a tree in the forest; to do this, again, he must have made an axe, and so on. But there is still a third way; instead of felling one tree he fells a number of trees, splits and hollows them, lays them end for end, and so constructs a runnel or rhone which brings a full head of water to his cottage. Here, obviously, between the expenditure of the labor and the obtaining of the water we have a very roundabout way, but, then, the result is ever so much greater. Our peasant need no longer take his weary way from house to well with the heavy pail on his shoul-

der, and yet he has a constant and full supply of the freshest water at his very door.

Another example. I require stone for building a house. There is a rich vein of excellent sandstone in a neighboring hill. How is it to be got out? First, I may work the loose stones back and forward with my bare fingers, and break off what can be broken off. This is the most direct, but also the least productive way. Second, I may take a piece of iron, make a hammer and chisel out of it, and use them on the hard stone—a roundabout way, which, of course, leads to a very much better result than the former. Third method—Having a hammer and chisel I use them to drill a hole in the rock; next I turn my attention to procuring charcoal, sulphur, and nitre, and mixing them in a powder; then I pour the powder into the hole, and the explosion that follows splits the stone into convenient pieces—still more of a roundabout way, but one, which, as experience shows, is as much superior to the second way in result as the second was to the first.

Yet another example. I am short-sighted, and wish to have a pair of spectacles. For this I require ground and polished glasses, and a steel framework. But all that nature offers toward that end is silicious earth and iron ore. How am I to transform these into spectacles? Work as I may, it is as impossible for me to make spectacles directly out of silicious earth as it would be to make the steel frames out of iron ore. Here there is no immediate or direct method of production. There is nothing for it but to take the roundabout way, and, indeed, a very roundabout way. I must take silicious earth and fuel, and build furnaces for smelting the glass from the silicious earth; the glass thus obtained has to be carefully purified, worked, and cooled by a series of processes; finally, the glass thus prepared—again by means of ingenious instruments carefully constructed beforehand—is ground and polished into the lens fit for short-sighted eyes. Similarly, I must smelt the ore in the blast furnace, change the raw iron into steel, and make the frame therefrom—processes which cannot be carried through without a long series of tools and buildings that, on their part again, require great amounts of previous labor. Thus, by an exceedingly roundabout way, the end is attained.

The lesson to be drawn from all these examples alike is obvious. It is—that a greater result is obtained by producing goods in roundabout ways than by producing them directly. Where a good can be produced in either way, we have the fact that, by the indirect way, a greater product can be got with equal labor, or the same product with less labor. But, beyond this, the superiority of the indirect way manifests itself in being the only way in which certain goods can be obtained; if I might say so, it is so much better that it is often the only way!⁶

Economy of the Indirect Process. The first of Böhm-Bawerk's illustrations is an excellent example of a productive process that has

⁶ Eugen von Böhm-Bawerk, *The Positive Theory of Capital*, New York, G. E. Stechert & Company, 1923 (reprint), pp. 18, 19.

become increasingly capitalistic, and therefore increasingly round-about. The peasant at the outset used the direct process of production, but finally was supplied with water by a very indirect or round-about process. If we wished to carry the illustration a step further, we might cite the water supply systems of our large cities, where the amount of capital involved is extremely great but the service rendered to the consumers is likewise very great. Though it takes months or even years to provide the equipment used in our modern water systems, no one will question that the time is well spent; and—judging from this illustration, and from thousands of others that may be drawn from daily life—we may say with assurance that usually the indirect or roundabout process of industry is decidedly economical in the long run.

Pieces of capital, or producers' goods, may well be thought of—as Böhm-Bawerk suggests—as "friendly allies" in the work of production. "Every roundabout way means the enlisting in our service of a power which is stronger or more cunning than the human hand; every extension of the roundabout way means an addition to the powers which enter into the service of man, and the shifting of some portion of the burden of production from the scarce and costly labor of human beings to the prodigal powers of nature."⁷

The Accumulation of Capital. The essential element of this indirect process is the use of large quantities of capital. This capital is accumulated gradually. It is accumulated because some persons, instead of consuming everything they create, decide to save part of their product, or income. Capital accumulation means refraining from consumption, and spending for producers' goods, or capital, a part of a money income which might have been spent entirely on consumers' goods. When an individual reduces his consumption of ice cream, theatrical performances, excursions, and other luxuries, and with the savings thus made purchases machinery—as he may do, for example, by buying a share of stock—he is creating capital and is himself becoming a capitalist. He is placing part of his income in the middle section of our diagram, where it will remain for a time, and perhaps permanently, as an important factor in our industrial process.

Capital, therefore, in many cases represents self-denial on the part of the savers; but in some instances the savers' money incomes are so large that it would be absurd to say that there has been any sacrifice. Not until a person has a money income larger than he must spend for

⁷ *Ibid.*, p. 22.

immediate needs—that is, a *surplus*—can he save. Capital therefore comes into being as a result of a surplus, and, as we have seen, this surplus must be invested in producers' goods before there is any addition to the total stock of capital in the country.

We should add that it may be a *corporate* instead of an individual surplus; for in many instances the directors of a corporation decide to use a portion of its profits for the purchase of additional capital, in place of distributing it among stockholders in the form of dividends.

The Nature of Capital. It will be well at this point to emphasize the fact that capital consists of goods, and not of money. The business man will often speak of his capital in terms of money, but if we were to question him closely we should discover that what he really has in mind is the concrete goods that his money has purchased, and that he has expressed these goods in terms of money simply as a matter of convenience. When a manufacturer, for example, refers to his capital of \$50,000, what he says, in effect, is that he controls land, a factory building, machinery, and certain materials, which represent an outlay of \$50,000. To the economist, all of these concrete goods, except land, may properly be called capital. Land, as we have seen, is placed in a separate category for reasons which will appear later.

Unless this economic concept of the term "capital" is kept clearly in mind, confusion is certain to arise. We have seen that cups, buckets, and pipe lines are productive because they are producers' goods (or capital) which make it possible, with a given expenditure of human effort, to secure a larger supply of water than could be had without their aid. Money *as such* does not, of course, aid in the production of water or anything else. But since it is a claim upon economic goods, it may be exchanged for cups, buckets, pipe lines, and other useful pieces of producers' goods, and thus it performs a useful function in a highly organized society.

In much of our economic discussion, the issues become far clearer whenever we are able to push aside the money concept and get down to fundamentals, which usually means speaking in terms of goods. Hence, it is recommended that we hold fast to our definition of capital as produced goods intended for further production.

PRODUCTION, INCOME, AND WEALTH

Fig. 3 illustrates the process of production employed by man in his endeavors to satisfy his wants by utilizing the scarce means provided by nature. These scarce means are the natural resources

which, as students of economics, we call land. Once the productive process has made substantial headway, man finds himself in possession not only of land but of capital and unused consumers' goods as well. These material goods are labeled "Wealth (January 1)" in our figure, and include all of the desired, scarce, transferable, material things in existence at that time. Labor, though not a part of wealth, has been included in the diagram for the reason that it is not wealth alone, but a combination of wealth and labor, that produces the economic goods of which income is composed. In some instances, as,

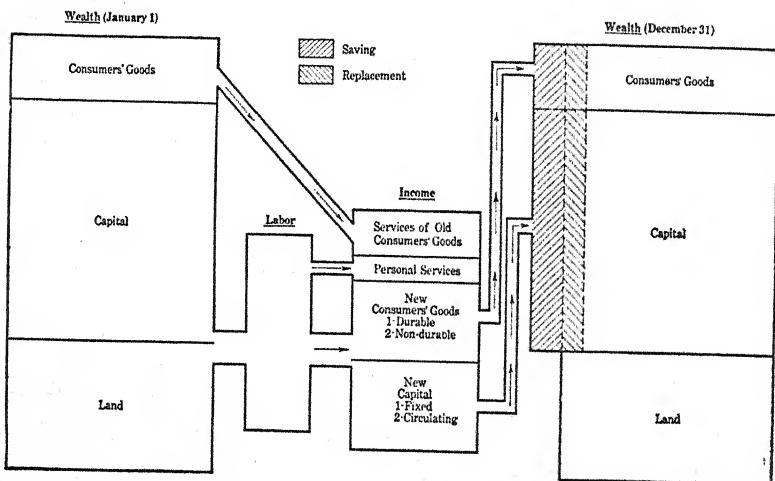


FIG. 8. WEALTH AND INCOME.

for example, in the manufacture of machine-made goods, the combination consists of much wealth and little labor; but sometimes, as in the case of the non-material goods produced by the lawyer or physician, much labor and little wealth are used.

The central part of our diagram shows, under the heading "*Income*," the personal services, *new consumers' goods*, and *new capital* that have come into existence in that year. Income for the year consists of this *flow* of new economic goods, material and non-material, which have been produced by labor used in combination with land and capital—plus, of course, the services yielded by *old consumers' goods* held over from the preceding year.

Personal services and the services of old consumers' goods are short-lived. Though their effects may endure, the services themselves

do not. But the new consumers' goods and new capital produced in a given year are unlikely to be wholly used up in that period of time. Hence we have indicated, by the shaded sections of that part of the diagram that appears as "*Wealth* (December 31)," the addition of sufficient new capital and consumers' goods not only to replace the wealth of these kinds that was used up during the year, but to give society on December 31 a net increase in wealth as compared with its stock of such goods twelve months earlier. Strictly speaking, the quantity of land has been *reduced* somewhat during this period, because coal, iron ore, petroleum, and other natural resources have been turned into capital or consumers' goods in the course of the year. But in an expanding economy, there is a net gain in wealth; the volume of production may be expected annually to exceed the volume of consumption, with a consequent increase in total wealth (in terms of physical goods, but not necessarily in monetary terms) year by year.

Production is the creation of utility.

Utility is that relationship of a good to a human being which is expressed by saying that the good is desired by the human being. ("Utility" is synonymous with "wantedness" and "desiredness.")

Land is natural resources created without the aid of labor.

Labor is human energy expended for the purpose of acquiring income.

Capital (or *producers' goods*) is produced goods intended for further production.

A *business enterpriser* is a person that assumes the ownership and hence the risks of a business.

1. Define "production" and "utility."
2. How can we determine whether a given member of society is a "producer"?
3. List the several types of utility created by economic workers, and give illustrations (not taken from the text) of each type.
4. On what basis may we classify, as creators of specific types of utility, such workers as bookkeepers, typists, office boys, accountants, and janitors, who may be found in businesses of all kinds?
5. Some business men speak of their manual laborers and machine operators as "producers," but refer to the office force as "non-producers." Is the designation a sound one from the point of view of the definition in the text? Why or why not?

6. What is the annual expenditure for newspaper advertising in the United States?
7. What is "unproductive" advertising? Illustrate with an example not cited in the text.
8. Name a form of economic activity that might seem to fit into at least two of the five classifications of utility.
9. Land has been called "the starting-point of all production." Defend or attack this characterization.
10. What is the land area of the United States, and to what extent is it used for agriculture?
11. Define "labor."
12. Compare the dictionary definition of a "professional" with the economic concept of a "laborer."
13. How many "laborers" are there in the United States, and how are they distributed numerically among the general fields of economic endeavor?
14. Distinguish between "land" and "capital."
15. "Capital" is sometimes called "producers' goods." Do you consider this an appropriate term? Why or why not?
16. What is the socialist attitude toward the ownership of capital?
17. Distinguish between "laborer" and "business enterpriser."
18. Describe the function performed by the business enterpriser.
19. What is the estimated number of business enterprisers in the United States?
20. What is the chief difference between "direct" and "indirect" production?
21. Give examples (not taken from the text) of direct and indirect production.
22. In what two important ways does society benefit from the use of the indirect process of production?
23. Explain the manner in which "capital" is accumulated.
24. Of what does "capital" consist? Is money "capital"? Explain.
25. How may a person become a "capitalist" in modern economic life?
26. Study Fig. 3, and be prepared to explain how it illustrates the fundamental nature of the phenomena that constitute man's efforts to satisfy his wants by utilizing the scarce means provided by nature.

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5. *The Arrangement of the Productive Factors*

Not only must land, labor, and capital be brought together and formed into a going machine, but they must be employed in the proper proportions if production is to be efficient and therefore economical. Unless they are so employed, the maximum product that might be had through the use of a given quantity of land, labor, and capital will not be attained.

THE LAW OF DIMINISHING RETURNS

This fact has long been understood, but its full significance has not always been appreciated. The possibility of affecting the return from a given piece of land by varying the quantities of labor and capital employed on it, found early expression in the Law of Diminishing Returns which a famous economist, John Stuart Mill, called the "most important proposition in political economy."

Statement of the Law. The Law of Diminishing Returns is usually stated about as follows: "In a period during which there are no changes in the methods of production, if successive units of capital or labor (or both) are applied to a given quantity of land, then, after a certain point has been reached, each additional unit of these variable productive agents will add to the *total product* a smaller amount of product than was added by the preceding unit." The law is applicable to land of all kinds, but its workings may be seen most readily in agriculture, since here the productive agents are relatively simple and the product is easily measurable.

Diminishing Returns in Agriculture. An actual experiment in southeastern Kansas, conducted for the purpose of ascertaining the effects of varying applications of fertilizer in the growing of wheat, has provided data which contribute to an understanding of the prin-

ciple of diminishing returns.¹ The results of the experiment are given in Table 2.

TABLE 2. EFFECTS OF BONE MEAL UPON THE YIELD OF WHEAT IN SOUTHEASTERN KANSAS

Varying Quantities of Bone Meal (capital)	Total Product (bushels)	Marginal Product (bushels)	Value of Marginal Product at		
			\$1.00	\$1.20	\$1.40
No bone meal used.....	10.6	...	....	....	....
1 unit (total 30 lbs.) used.....	14.9	4.3	\$4.30	\$5.16	\$6.02
2 units (total 60 lbs.) used.....	17.3	2.4	2.40	2.88	3.36
3 units (total 90 lbs.) used.....	18.7	1.4	1.40	1.68	1.96
4 units (total 120 lbs.) used.....	19.5	.8	.80	.96	1.12
5 units (total 150 lbs.) used.....	19.9	.4	.40	.48	.56
6 units (total 180 lbs.) used.....	20.2	.3	.30	.36	.42

This table shows the effects of varying quantities of bone meal (which is *one* of many forms of capital) when used in conjunction with *fixed* quantities of other kinds of capital (such as seed and implements) and a *fixed* quantity of labor on a *fixed* quantity (one acre) of land. Under the conditions outlined, any changes that occur in the total product must, of necessity, be due to changes in the quantity of the variable factor, bone meal.²

Our figures show that each increase in the number of units of this factor brings an increase in the *total product*. If no bone meal is used, the fixed quantity of other kinds of capital, plus labor, produces 10.6 bushels of wheat on an acre of land. If one unit (30 pounds) of fertilizer is applied, the total product jumps to 14.9 bushels. The increase in product continues throughout the entire illustration, the greatest total product (20.2 bushels per acre) being obtainable with the application of 6 units (or 180 pounds) of bone meal.

It is difficult to state the Law of Diminishing Returns simply and yet clearly, and it sometimes happens that the conditional clause—"if successive units of capital or labor (or both) are applied to land"—

¹ These data are taken from the *Yearbook of the United States Department of Agriculture*, 1926, p. 477.

² Although, in order to get uniform weather conditions, an experiment of this kind must be conducted on several separate acres of similar land (each with a different quantity of the variable factor), the results may properly be said to indicate (as is shown in the table) the effects of varying applications of fertilizer on a single acre of land.

gives students the impression that the enterpriser applies first one unit, then another, then a third, and so on. Certainly this is not the sort of thing that ordinarily occurs in farming or any other economic process. A producer of wheat would know from actual experience, or perhaps from experiments carried on by agriculture experimental stations, approximately how much bone meal to apply, and he would apply it all at once and not in a half-dozen successive doses. Table 2 should be read, then, as a series of statements of *what would happen if the several conditions there set forth were met*. What the experiment proved, and what the table says, is that, with the given combination of land, labor, and capital other than bone meal, the enterpriser would get 10.6 bushels of wheat from his acre; if to this combination he should add one unit (30 pounds) of bone meal, he would get 14.9 bushels, instead of 10.6 bushels; if he should use two units (a total of 60 pounds) of bone meal, he would get 17.3 bushels of wheat instead of the 14.9 bushels that he would have had with the use of but one unit of bone meal; and so on.

The Point of Diminishing Returns. The third column of the table (giving *marginal product*, in bushels) shows clearly that, though the total product makes a steady increase, this increase, "after a certain point has been reached," is *at a diminishing rate*. If no fertilizer at all is used, the total product is 10.6 bushels and if one unit (30 pounds) is applied, the total product is increased by 4.3 bushels. This increase, because it represents a difference in the total product brought about by the use of a single, or "marginal," unit of the variable agent of production, is called the "marginal product." The use of a second unit of the variable agent brings, it will be observed, a marginal product of only 2.4 bushels; and the gains through the employment of third, fourth, fifth, and sixth units are still more discouraging, the use of the final (or sixth) unit resulting in a total product only three-tenths of a bushel greater than if this unit had not been employed.

The question now arises as to the exact position of the "certain point" to which reference has been made. In our illustration, the point in question is that at which the first unit of the variable agent has been applied, for this is the point beyond which further units of the agent cannot be employed without a decline taking place in the marginal product. Of course, the point of diminishing returns will not always coincide with the first application of the variable factors, but it will inevitably be that point in the productive process *beyond*

which "each additional unit of these productive agents will add to the total product a smaller amount of product than was added by the preceding unit." That is, it will always be *the point at which the marginal product is at its maximum.*

It is entirely possible (though on this matter our illustration throws no light) that, *up to the point of diminishing returns*, each additional unit might bring a *greater* marginal product than was added by the preceding unit, or, again, a yield *exactly equal* to the marginal product of the preceding unit. When results such as these are experienced, they are known as "increasing returns" and "proportional returns," respectively, but these two conditions need not occupy our attention further at this time.

A Note on "Product" and "Value." The Law of Diminishing Returns is certain to prove confusing unless the student keeps steadily in mind the fact that the "product" referred to in the statement of the law is *physical product*, and not the *value* of that product as expressed in price. Therefore, the point of diminishing returns does not necessarily indicate the point beyond which it is unprofitable to carry cultivation. Whether it will pay the farmer to push cultivation beyond the point of diminishing returns depends upon his costs of production and the price at which the commodity in question is selling.

The Point of Most Profitable Use. The last three columns of Table 2 show the money value of the several increases in yield when wheat is bringing \$1.00, \$1.20, and \$1.40 a bushel, respectively. The estimated cost of each unit (80 pounds) of bone meal is 75 cents. With these figures before us, the money gains or losses that will be experienced through the use of more or fewer units of this variable factor may be easily calculated.

Our farmer will naturally continue to apply bone meal as long as the money return for the marginal product is greater than the outlay for additional fertilizer, but he will certainly do his best to stop before the marginal product is so slight as to bring in a smaller revenue than the cost of a unit of bone meal. If wheat is selling at \$1.00 a bushel, it will pay him to use four units, for the use of the fourth unit is followed by a marginal product amounting to eight-tenths of a bushel, which will sell for 80 cents, while the fertilizer costs but 75 cents. It will not pay, however, to use a fifth unit, since the extra cash return (for the extra four-tenths of a bushel) would mean a net loss of 35 cents.

An examination of the other two columns reveals the fact that the fourth unit is, in each instance, the last unit of bone meal that the

intelligent farmer (in possession of all the necessary factors) would employ. If, however, the price of wheat were \$2.00 a bushel, it would pay to employ five units of fertilizer, since the marginal product of the fifth unit would then sell for 80 cents, with a net gain of 5 cents.³

In Table 3, in which wheat is assumed to be selling at \$1.00 a bushel, the point of most profitable use is shown with particular clarity. By subtracting the total cost of the bone meal from the amount received from the sale of the total product, we may ascertain, at each stage of our illustration, how much of the total receipts remains available to pay for the other agents of production (land, labor, and

TABLE 3. THE POINT OF MOST PROFITABLE USE IN THE EMPLOYMENT OF BONE MEAL IN WHEAT PRODUCTION

(Based upon data in Table 2)

Units of Bone Meal	With Wheat at \$1.00 per Bushel		Total Cost of Bone Meal, at 75 Cents per Bushel	Total Amount Available to Pay Productive Agents Other than Bone Meal
	Total Product	Total Receipts		
0	10.6 bu.	\$10.60	\$0.00	\$10.60
1	14.9 bu.	14.90	0.75	14.15
2	17.3 bu.	17.30	1.50	15.80
3	18.7 bu.	18.70	2.25	16.45
4	19.5 bu.	19.50	3.00	16.50
5	19.9 bu.	19.90	3.75	16.15
6	20.2 bu.	20.20	4.50	15.70

capital other than bone meal) used in the raising of wheat. Since, in our example, *these other agents are exactly the same in all seven phases of the experiment*, the point of most profitable use is bound to be the point at which the amount available for remunerating these agents is greatest. The table shows that this amount is greatest when four units of bone meal are used. Hence, the point of most profitable use is the point at which four units of bone meal are employed, when the cost of bone meal is 75 cents a unit and the price of wheat is \$1.00 a bushel. Of course, a change in either of these items might shift the point of most profitable use.

³ In these calculations no allowance has been made for increased cost in harvesting and marketing the extra yields of wheat. But the cost in the case of a crop of this kind is a small one.

Exhaustion of Soil Fertility. It must be emphasized that the diminishing returns we have been discussing are not the result of exhaustion of the fertility of the soil. It is true that, if the chemical elements necessary to plant growth (nitrogen, phosphorus, and so on) are not returned to the soil from year to year, the fertility will gradually be exhausted and the land will produce in successive years smaller and yet smaller crops. But this decline in yield must be charged to unscientific use of the land—amounting, in effect, to *mining* instead of *farming* the soil—and not to the operation of the principle of diminishing returns. The experiment we have used for illustrative purposes takes no account of whether the soil is rich or poor. The Law of Diminishing Returns is applicable to land of *any given degree of fertility*.

We may remark, parenthetically, that ignorance is no excuse nowadays for permitting impoverishment of the soil through lack of replenishment of the necessary plant food. A farmer may now have his soil analyzed, and thus discover in what properties it is deficient. If, then, he allows his farm to "run down," he is no more deserving of sympathy than is the manufacturer who fails to make provision for the replacement of factory machinery as it wears out.

Influences Counteracting Diminishing Returns. Toward the end of the eighteenth century, and early in the nineteenth, Thomas Robert Malthus, an English clergyman, wrote a series of essays dealing with economic problems. In these essays he pointed out that a serious situation might eventually arise by reason of (1) the tendency of population to multiply rapidly, and (2) the resistance of nature to man's attempts to increase indefinitely the agricultural product to be had from a given amount of land.⁴ In other words, Malthus saw, as he thought, that population was increasing much more rapidly than the means of subsistence (by which he meant, primarily, foodstuff); and he indicated that, because of the discrepancy between the two, a clash was inevitable unless measures were adopted to avoid it.

But we find that overpopulation, in the sense of numbers too great for the available food supply, has not been experienced by the world as a whole. And because world population is now greater than ever before, and yet food *per capita* is more abundant than at any time in the past, some persons have supposed that the Law of Diminishing Returns has been disproved. This supposition is false, and arises from

⁴ Malthus did not mention specifically the principle of diminishing returns, but his doctrine appears to have been based on this principle.

a misinterpretation of the law. For the law has, as one of its conditions, no change in the methods of production; and agriculture, as we know, has taken tremendous strides in the past century and a half. Moreover, men have not confined their activities to fixed quantities of land, but have spread throughout the world and have brought under cultivation great stretches of new agricultural land. Finally, the rate of increase of population, which gave Malthus cause for alarm, has declined appreciably in recent years.

Discarding now the references of Malthus to increases in population, and considering only the question of diminishing returns, we may say that if thus far the tendency toward diminishing returns has seemed to have no significance as a world problem, it is because of certain counteracting influences, such as developments in methods of agriculture and the possibility of spreading out over new areas of land. Counteracting forces of these kinds have unquestionably served to offset some of the effects of the Law of Diminishing Returns, but this does not mean that the principle of diminishing returns has not been operating all the while.

Though the introduction of improved methods of farming has brought a larger yield per acre for a given expenditure of human effort and capital, even the most scientific agricultural methods will not enable a farmer indefinitely to apply labor and capital to a field without experiencing diminishing returns. Farmers know from experience that diminishing returns result from excessive applications of labor or capital, or of labor and capital, to a given quantity of land, and, noting the decline in marginal product as more and more units of the variable factors are applied, they seek to avoid diminishing returns by increasing the acreage under cultivation.

The fact that diminishing returns have not yet resulted in great deprivation and suffering does not, then, in any sense invalidate the Law of Diminishing Returns. The law has been working right along, and its effects may be observed by an examination of *specific pieces* of land. Indeed, the experiment described in Table 2 serves to show concretely, and not merely theoretically, the way the Law of Diminishing Returns actually works on a given piece of land. The influence of this principle upon the actions of individual farmers is apparent, for diminishing returns have caused them in many instances to adopt extensive instead of intensive methods of cultivation. And the importance of diminishing returns as a world problem will become evident whenever (should such a time come) we have reached a

fixed state in agricultural knowledge and practice, and at the same time are compelled to limit agricultural activities to a fixed quantity of land; in a word, whenever the conditions laid down in the Law of Diminishing Returns apply throughout the world.

The Variable Factor or Factors. In an earlier paragraph, reference was made to several kinds of capital that might be used in the growing of wheat. Of the three kinds mentioned (seed, implements, and fertilizer), fertilizer alone has thus far been considered as a variable. This, indeed, was the only variable factor employed in the actual experiment, and through the application of varying quantities of this one factor the practical importance of the Law of Diminishing Returns was demonstrated.

But it will readily be seen that seed or implements might have been used in place of bone meal as the variable factor; or any two, or all three, of these different types of capital could have been employed in the experiment, and in each instance diminishing returns would have been experienced. Seed, of course, is an essential in the production of agricultural crops, but if seed should be applied to a given plot of land in steadily increasing quantities, a point would eventually be reached beyond which each bushel of seed, while adding something to the total product, would be less effective than the preceding bushel in increasing the total product. This is true also of the employment of successive units of farming implements, or machinery; and, likewise, of capital *as a whole*.

If the quantity of labor, instead of capital, should be increased unit by unit, the result would be similar in nature to that brought about by varying the quantities of capital. The Law of Diminishing Returns describes, therefore, the effects of increasing applications of capital *or* labor. And it describes equally well the effects of increasing applications of capital *and* labor; for if *both* of these factors should be made variable, land alone remaining fixed in quantity, diminishing returns would inevitably set in after a certain point had been reached in the use of the variable factors. We shall not take the time that would be required to trace through, step by step, each of these possibilities. The skeptical reader may do this for himself.

Possibility of Negative Returns. It is conceivable that the variable factors might be used in such exceedingly large quantities that the *total* as well as the *marginal* product would decline. Seed might be sown to so great an extent as to crowd the stalks of wheat and interfere with proper heading and ripening. Fertilizer might be used

in excess, and the plant life be "burnt out" as a consequence. Workers might be employed in such large numbers as to trample the crop underfoot, and so on. The question is a purely academic one, of course, since it is extremely unlikely that a farmer would be so foolish as to continue to apply expensive agents of production if their addition brought a smaller money return than their cost. But our illustration shows how the *positive increases* tend to become progressively smaller, and may even be turned into *negative increases*, or positive losses.

Diminishing Returns on Building Sites. In the construction of buildings, as in agriculture, there is a tendency toward diminishing returns.⁵ Modern methods of construction make it physically possible to erect buildings reaching 150 stories, but this does not mean that it is economically feasible to do so. To begin with, a tall building must have a more substantial foundation than a low one. Moreover, larger quantities of the agents of production, or agents of better quality, must be used in building a high story of a skyscraper than in building a lower story. If the sixtieth floor of a building contains offices duplicating exactly, in number and arrangement, those on the fifty-ninth floor, the chances are that it presents an illustration of the principle of diminishing returns, since more or better capital and labor are required in constructing the sixtieth story than in constructing the fifty-ninth. For example, the higher in the air a builder goes, the greater is his outlay—in terms of capital and labor—for hoisting the building materials to the level on which they are to be used. That is equivalent to saying that the marginal product *per unit of capital and labor* declines after a time.

We shall not be able to determine the exact point of diminishing returns in our consideration of building sites, as we could when dealing with agricultural land. In agriculture the units of product (such as bushels of wheat) produced on a piece of land are alike and may readily be measured. But no two rooms in an office building are identical, even though they are exactly alike in size and other physical aspects; for no two offices can have precisely the same location, and

⁵ As will be explained in our treatment of variable proportions, which appears later in the chapter, diminishing returns occur (after a certain point has been reached) whenever varying quantities of *any* agent or agents of production are used in combination with fixed quantities of *any* agent; and they are found not only in agriculture and the construction of buildings, but also in mining, fishing, lumbering, merchandising, transportation, manufacturing, and, in short, in all forms of economic activity.

location is, in this instance, an important factor. Consequently, though we may easily measure bushels of grain, it is not possible to measure, with any great degree of accuracy, the *units of convenience* afforded by a building of one kind or another.

But though we cannot locate, in the case of building land, the definite point of diminishing returns, we may say with assurance that such a point does exist. Diminishing returns relate, as we have seen, to physical product, but decreases in the amounts of the successive increments of agricultural product are reflected in the progressively smaller values of these successive increments. After a time, the value of the increment obtainable through the use of additional units of the variable factors becomes so slight that it seems unwise to make further applications. The point of most profitable use has now been reached; and there is no reason to believe that this point can be reached until the point of diminishing returns has also been reached, and probably has been passed.

Most Profitable Use of Building Sites. In the use of building sites, as in agriculture, there is a point of most profitable use. When, in the use of building land, there comes a point beyond which the money return does not justify the money expenditure, the point of most profitable use has been reached.

Business men, of course, are interested primarily in the point of most profitable use, and we may note, in this connection, a specific instance of such interest. Some years ago, the American Institute of Steel Construction made a study, covering a period of two years, which was undertaken with the hope of determining the most economical height of buildings. "Plans for eight buildings of varying heights were drawn and estimates of income, operating expenses and construction and land costs were made. The net return on a fifteen-story building was 6.43 per cent; on a twenty-two-story structure, 7.75 per cent; thirty-story, 8.50 per cent; thirty-seven-story, 9.07 per cent; fifty-story, 9.87 per cent; sixty-three-story, 10.25 per cent, and on a seventy-five-story building the return began its decline, going down to 10.06 per cent. These estimates were based on structures constructed on land valued at \$200 a square foot."⁶

The point of most profitable use varies, naturally, with the price of land, which is a reflection of its relative scarcity. Though a building sixty-three stories in height was found to be the most economical when land was worth \$200 a square foot, the maximum return came

⁶ From *The New York Times*, September 22, 1929.

from a seventy-five-story building on land worth \$400 a square foot. The study showed that, with land at this latter figure, the net return from a building disappeared entirely when 131 stories were reached.

THE LAW OF VARIABLE PROPORTIONS

To the earlier economists the phenomenon of diminishing returns appeared to relate only to land. It remained for later students of economics to show that the principle has a much wider application than was originally supposed. It is now recognized that labor and capital, as well as land, are subject to diminishing returns, and the economic statement setting forth this fact is known as the Law of Variable Proportions.⁷

Statement of the Law. Following is a statement of the Law of Variable Proportions: "In a period during which there are no changes in the methods of production, if successive units of one or more productive factors are used in conjunction with a given quantity of any other factor, then, after a certain point has been reached, each additional unit of the variable factor or factors will add to the *total product* a smaller amount of product than was added by the preceding unit."

This law is in fact merely an extension of the Law of Diminishing Returns, and it says, in effect, that if variable quantities of land and labor are used in combination with a fixed amount of capital, or variable quantities of land and capital are employed with a given amount of labor, then diminishing returns will eventually appear just as they appear in the case of long-continued applications of capital and labor to a fixed quantity of land.

The Effects of Changed Proportions. Once the Law of Diminishing Returns is thoroughly understood, it becomes evident that diminishing returns are attributable to changes in the proportions of the several productive agents that occur whenever an addition is made to the quantity of the variable factors in use. Now these proportions change no less certainly when either capital or labor is the fixed factor, than when the quantity of land remains unaltered. If one productive agent is very scarce and therefore expensive, and, as a

⁷ It is called, also, the Law of Diminishing Productivity and the Law of Proportionality. The latter name is that favored by Professor Carver, who has described the principle and its application at considerable length. See T. N. Carver, *The Distribution of Wealth*, New York, The Macmillan Company, 1913, chap. 2; also, by the same author, *Essays in Social Justice*, Cambridge, Harvard University Press, 1922, chap. 7.

consequence, the more plentiful factors are used in increasingly large amounts while the very scarce agent is held constant, the proportion of each factor to the other factors has obviously been changed. The inevitable result, after a certain point has been reached, is diminishing returns. Our study of the Law of Diminishing Returns showed how this change in the proportions of the agents acts when land is the scarce factor, bringing an increase in product *per unit of land*, but a decrease per marginal unit of capital and labor, the more abundant factors.

Variable Proportions in Agriculture. If capital is the scarce or fixed factor, and increasing quantities of land and labor are used in connection with it, then, after a time, diminishing returns will again be experienced, with the product *per unit of capital* steadily increasing (since *total product* increases while capital remains constant), but the marginal product per unit of land and labor diminishing. Hence, if land and labor (being abundant) are cheap, and capital (being scarce) is expensive, a farmer might find it profitable to use more and more land and labor in connection with a fixed quantity of capital.

This would mean, in the case of a corn crop, planting more acres in corn but cultivating less often with machinery, since farming implements (being capital) would be definitely limited in quantity and if employed on both old and new fields could not be used on each acre as intensively as before. An abundance of hand labor for seeding, stone-picking, and so on, would help to overcome the shortage of capital; but the arrangement would certainly in time bring diminishing returns *per marginal unit of land and labor*, though an increase in total product. If the variable factors were sufficiently cheap, it might pay the farmer to carry cultivation far beyond the point of diminishing returns.

In like manner, if labor were very scarce and land and capital were abundant, it might pay the agricultural enterpriser to change the proportions of his business arrangement, economizing on labor and being more generous in the use of acres and machinery. This policy likewise would lead to diminishing returns, with only a small return in marginal product for each additional unit of land and capital employed, but it would result in a greater return per unit of labor, the scarce factor. Agriculture of this type is common in the so-called "corn belt" and "wheat belt" of the United States, where a few farm

hands, with the most modern agricultural machinery, cultivate hundreds and even thousands of acres of land.

Variable Proportions in Manufacture. The possibilities of using variable proportions might be shown in almost any form of business enterprise, but one further illustration, taken from the field of manufacturing, will be sufficient for our purposes.

We have already seen that, in the case of an office building, the use of additional quantities of labor and capital on a fixed amount of land brings diminishing returns. This is true also in factory construction, since here, as in the case of office buildings, increased height renders the use of additional units of labor and capital progressively less productive than the former units, after a certain point has been reached. Here, then, is an instance of diminishing returns in manufacture, when land is the scarce factor and is therefore used in limited quantity.

But if land and labor are both plentiful, while there is a scarcity of capital, the intelligent manufacturer will employ capital sparingly and at the same time will use large quantities of the other factors. Under these circumstances, the factory building may be made to cover a large area, but reach the height of only a floor or two, instead of three or four. Workers, too, will probably be hired in large numbers to assist those who are operating machines and using tools, so that all capital may be made to perform maximum service. The result will be a large product *per unit of capital*, but diminishing returns as regards one or both of the other factors.

The manufacturer, like the farmer, will economize in the use of workers if labor chances to be the scarce factor. This condition would indicate the desirability, from the point of view of *net financial return*, of employing large quantities of capital and spreading out over a considerable amount of land. This would mean, of course, the use of the latest and best labor-saving devices, so that a very little of the expensive factor, labor, could be made to go a long way in the manufacturing process. The effect of this arrangement of the productive factors would be a large product *per unit of labor*, but diminishing returns so far as units of land and capital were concerned.

An Example of Variable Proportions. Table 4 is a hypothetical illustration of the operation of the Law of Variable Proportions. In this example, the quantity of labor and capital is assumed to be fixed. The table indicates the total and marginal products that accompany

the use of varying quantities of land in connection with the fixed quantity of labor and capital.

TABLE 4. EFFECTS OF USING VARYING QUANTITIES OF LAND IN COMBINATION WITH A FIXED QUANTITY OF LABOR AND CAPITAL

Number of Combination	Units of Land	Units of Labor and Capital	Total Product (bushels)	Marginal Product (bushels)
1	4	10	100	
2	5	10	115	15
3	6	10	135	20
4	7	10	152	17
5	8	10	167	15
6	9	10	180	13
7	10	10	189	9

In this table, the point of diminishing returns in the use of land is, of course, at Combination No. 3, since that combination yields the largest marginal product. The point of most profitable use may be calculated quite as easily here as in Table 2, provided the rental price of land and the selling price of the product are known. If these prices are \$15 an acre and \$1.00 a bushel, respectively, the point of most profitable use will be at Combination No. 5, since that is the point at which the cost of a unit of the variable agent is precisely equal to the return realized from the sale of the marginal product.

DIMINISHING RETURNS AND COSTS OF PRODUCTION

The Law of Variable Proportions, as we have seen, is simply an extension of the Law of Diminishing Returns. It points out that diminishing returns may occur whenever there is a "fixed" factor of production, whether that factor is land, labor, or capital.

The Element of Scarcity. In describing the workings of diminishing returns, we have sought to emphasize the fact of scarcity, for it is only because of the limited quantity of certain productive agents that the phenomenon of diminishing returns has practical significance; and, moreover, it is only because of diminishing returns that the limited quantity of scarce productive agents is significant. If none of the factors of production were scarce, the business man would have no reason to economize in their use, and he would certainly not endure diminishing returns when he might easily avoid them by combining advantageously the equally abundant factors. But the truth of the matter is that all productive agents are sufficiently scarce

to command a price, and some are at times so limited in quantity as to command a very high price.

The use of large quantities of expensive factors runs up the business man's costs of production, and these in turn are reflected in the prices he charges for the commodities or services in question. It is a desire to keep down expenses that prompts the enterpriser to economize in the use of scarce, costly factors of production, while using the plentiful, cheap factors more liberally. Though this economy, if long practiced, results inevitably in diminishing returns, it may at the same time be "good business" on the part of the enterpriser. This fact is demonstrated conclusively in our example of wheat growing, which showed that it sometimes pays to apply the plentiful, cheap agents of production to the scarce factor long after the point of diminishing returns has been passed. The stopping point for the business man is, of course, the point of most profitable use.

The Point of "Ideal Proportions." Every farm, factory, or store is a business unit, in the operation of which land, labor, and capital are employed in combination. It is the task of the enterpriser, first, to discover the proportions in which these productive agents may best be employed, and then to see to it that they are used in these proportions, and in no others. The object is to secure not the largest possible product for unit of land, per unit of labor, or per unit of capital, but the greatest total product in proportion to total costs of production. Progressive business men are seeking all the time to find the best possible (that is, most profitable) combinations of land, labor, and capital. There may arise, for example, the question whether to buy a new labor-saving machine and lay off workers, that is, increase the amount of capital and reduce the quantity of labor. Or, again, the problem may bear upon the proportion of capital to land. Is it better (the enterpriser may ask himself) to build high or low, using less land and more capital, or more land and less capital, as the case may be?

Questions such as these cannot be answered offhand. The most advantageous combination of the factors will depend upon their relative cost. Expensive agents will ordinarily be used sparingly; cheap factors will be employed with a freer hand. In the end, however, it will be most profitable to add units of each factor up to the point at which the contribution of each unit to the value of the total product will exactly equal the cost of the unit. For if, to quote Professor Carver, "by increasing any factor there would be added to the

total product of the establishment more than enough to pay the cost of increasing that factor, obviously it would pay to increase it. Or if, by decreasing such a factor, more would be saved in its costs than would be lost in the diminution of the total product, it would pay to decrease it.⁸ The point of most profitable use in the utilization of a productive agent may be defined, then, as the point at which the contribution of each unit of the agent to the total product exactly equals the cost of the unit.

Strictly speaking, there is no gain for the enterpriser in the use of a unit of an agent of production for which he must pay exactly as much as he realizes from the sale of the marginal product that is added by the use of this unit. But, as Professor Carver has shown, the enterpriser cannot stop short of this point without forgoing some profit, however slight, which he might have had by proceeding a little further in the use of the factor; nor can he go beyond this point without incurring some loss which he might have avoided by stopping the use of the factor a trifle earlier in the process. Consequently, the point at which the cost of the unit exactly equals the additional return realized by its use—sometimes referred to by economists as “the point of indifference”—is the point to which the profit-seeking enterpriser, provided he knows his own best interests, aims to bring his use of the various factors of production.

Diminishing Returns and the Supply of Land. Diminishing returns have no significance apart from a scarcity of productive factors, and all of the factors of production are more or less scarce. It should be noted, however, that the characteristic of scarcity applies with particular force to land. Capital is added to continually through the savings of members of society, and the labor supply is being steadily increased by growth in population. But the supply of land is, in a very real sense, fixed, and in the very nature of things must forever remain fixed.

From the point of view of the business man this distinction is not particularly important. He thinks of land, as he thinks of labor or capital, as a productive agent for which he must pay a price which will enter, together with other expenses, into his costs of production. For the enterpriser, then, land is in precisely the same position as the other agents of production.

But for the student of economics, who looks at the situation from the social point of view, the absolute fixity of the quantity of land

⁸ *The Distribution of Wealth*, pp. 89, 90.

does make a difference. It has a distinct bearing upon the distribution of income, as will be indicated in a later chapter. And it may eventually prove to be the "limiting factor" in production, which will set a point beyond which world population cannot safely go. It was recognition of the inability of man to increase the supply of land that caused Malthus to sound a note of warning, and led the earlier economists to regard diminishing returns as relating peculiarly to applications of units of labor and capital to a fixed quantity of land. It is this same scarcity of land that is today chiefly responsible for the interest manifested by economists and sociologists in so-called "population problems," the most important of which is that of bringing about and maintaining a relationship between numbers of people and land resources which will make possible a high standard of living for all.

Law of Diminishing Returns: In a period during which there are no changes in the methods of production, if successive units of capital or labor (or both) are applied to a given quantity of land, then, after a certain point has been reached, each additional unit of these productive agents will add to the total product a smaller amount of product than was added by the preceding unit.

Law of Variable Proportions: In a period during which there are no changes in the methods of production, if successive units of one or more productive factors are used in conjunction with given quantities of any other factors, then, after a certain point has been reached, each additional unit of the variable factor or factors will add to the total product a smaller amount of product than was added by the preceding unit.

The *point of diminishing returns* in the utilization of a productive agent is the point beyond which further units of the agent cannot be employed without a decline taking place in the marginal product.

The *point of most profitable use* in the utilization of a productive agent is the point at which the contribution of a unit of the agent to the total product exactly equals the cost of the unit.

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1. State the Law of Diminishing Returns.
 2. How can we speak of "diminishing returns" when our illustration (see Table 2, "Total Product in Bushels") shows that the product is continually *increasing*?

3. What is the significance of the phrase, "after a certain point has been reached"?
4. What are "increasing returns" and "proportional returns"?
5. Distinguish carefully between "total product" and "marginal product."
6. "The successive increments to the total product are at a diminishing rate." Explain the italicized phrase.
7. Does the Law of Diminishing Returns relate to *physical product* or to the *value* of that product?
8. What is the distinction between the point of diminishing returns and the point of most profitable use?
9. In Table 2 is it product *per unit of land* or *per unit of bone meal* that diminishes?
10. What relation does the exhaustion of soil fertility bear to the operation of the Law of Diminishing Returns?
11. What observations did Malthus make relative to population and foodstuffs, and to what conclusion did these observations lead him?
12. Since population has increased enormously in the past century, and yet food is *per capita* more abundant than ever before, is it correct to say that the Law of Diminishing Returns has been disproved? Explain.
13. Do you see any relationship between diminishing returns and the invasion of China by Japan? Explain.
14. Discuss the significance of diminishing returns in the light of probable advances in scientific research.
15. The Law of Diminishing Returns describes the effects of the increasing applications of *capital or labor*, or of *capital and labor*, to a given piece of land. What is the significance of the italicized words?
16. Explain how "negative increases" might result from excessive applications of capital or labor (or both) to a plot of land.
17. Show that the Law of Diminishing Returns relates to building sites, giving an illustration.
18. Summarize the findings of the American Institute of Steel Construction relative to the most economical height of buildings.
19. State the Law of Variable Proportions.
20. It is sometimes said that the Law of Variable Proportions is simply an extension of the Law of Diminishing Returns. Do you think that there are good grounds for making such a statement? Explain.
21. Explain, by examples, how (a) a farmer, and (b) a manufacturer, might vary the proportions of the factors of production used in their respective enterprises.
22. What conditions might induce a business man to make changes in the proportions of various productive factors?
23. What has scarcity to do with the operation of the principle of diminishing returns?
24. How do diminishing returns affect the prices charged for goods? Explain.

25. What is Professor Carver's comment as to the most profitable combination of the factors of production?
26. In what way does the supply of land differ from the supply of capital and labor?
27. How does the business man's attitude toward "land" differ from that of the economist?

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6. Economic Specialization

Specialization, or differentiation, in economic activities plays an important part in present-day business life. Specialization is one of the oldest of economic principles, and is found in communities of all kinds, small and large, primitive and modern. However, its usefulness depends largely upon the size of the market for the good that is being produced, so that specialization tends to increase with the growth of population.

SOME EXAMPLES OF SPECIALIZATION

Specialization in Merchandising. A simple example from the field of merchandising will show that this is the case. In parts of the country that are but slightly settled, goods of many kinds are sold in general merchandising stores. Here can be found food, tools, dry goods, furniture, and other types of goods likely to be demanded by the people of the neighborhood. Often these general merchants deal also in such articles as grains and fuel, buying grain from near-by farmers and selling them a supply of coal, in addition to the articles usually found in a country store. As population grows and villages and towns develop where formerly there have been only a crossroads and country store, we find new stores opening up, and specialization in selling begins to appear. The functions of the general merchant are split up, and some storekeepers undertake the sale of groceries, others of hardware, still others of dry goods, and so on.

With a still further increase in population, specialization in merchandising is carried forward another step. Instead of attempting, for example, to outfit an entire family with clothing, one merchant decides to confine his sales to men's wear, another to the sale of women's clothing, while a third specializes in shoes or some other single item of wearing apparel. In a more thickly populated area,

such as a great city with several million inhabitants, there is a tendency toward still greater specialization. The shoe dealer, for example, is quite likely to specialize in either men's or women's shoes, rather than try to handle both.

Specialization in Manufacture. In manufacturing, as in merchandising, there is specialization. Indeed, a manufacturer seldom undertakes to produce a great variety of articles. The manufacturer of shoes does not make hats, nor does the hat-maker produce underwear, hosiery, shirts, and clothing of other kinds. The manufacturer of automobiles is likely to confine his efforts to the production of motor vehicles, and to produce only a few models instead of a wide variety.

In the field of textiles, which form but one branch—though a very important branch—of manufacturing, we find a high degree of subdivision. Not only are there lines of demarcation between silk, woolen, and cotton manufacture, but within each of these divisions there are still further evidences of specialization. The manufacture of artificial silk, for example, is commonly separate and distinct from the manufacture of real silk. And in the field of artificial silk, the production of hosiery is conducted separately from the production of silk cloth. To note one further stage of specialization in this field, we may mention the fact that some manufacturers make only *tubular* hosiery, whereas others, with a different type of equipment, specialize in the production of *full-fashioned* hosiery. A similar inquiry into the manufacture of woolen and cotton goods would show that these industries, too, provide abundant examples of specialization.

Specialization in Agriculture. In agriculture, also, although to a lesser extent, there is specialization. It is quite true that many farmers carry on a general farming business, but there are also specialists in the field of agriculture. In the Middle West we find a "wheat belt" and a "corn belt," with emphasis upon the products indicated by these names. In certain parts of Washington and Oregon, agricultural specialization takes the form of apple-growing. In Florida and California we have specialized producers of oranges, and in many states of the South specialization takes the form of raising cotton. Thus, even a hurried survey of our economic system indicates that there is much specialization in the leading branches of industry; and this tendency is likely to increase with the further growth of population.

FORMS OF SPECIALIZATION

Specialization by Trade or Profession. Specialization of labor takes several forms. The simplest is specialization by *trade* or *profession*. Whenever a population is sufficiently large to justify certain workers in devoting their entire time to a particular trade, we are likely to find them concentrating their energies instead of engaging in several fields of activity. Thus, we have in modern times skilled artisans known as blacksmiths, bricklayers, machinists, cigar makers, glass blowers, paper hangers, structural steel workers, and so on. An examination of the rolls of organized labor shows that some millions of workers in the United States definitely regard themselves as destined to follow specialized trades throughout their working lives; and there are many unorganized workers who, equally clearly, are tradesmen or craftsmen. In some of these trades an apprenticeship of several years is demanded of the beginner before he is accepted as a fully qualified member of the craft.

In the so-called learned professions we find a similar situation. The physician, the preacher, and the teacher—like the carpenter, the plasterer, and the hod carrier—are specialists. Indeed, in some of these professions, as for example in medicine, specialization is increasing all the time, though there is still room for the general practitioner. There is a distinct tendency for doctors to become specialists in the diagnosis and treatment of particular types of human ills. We have long had dentists and oculists, who really are simply specialists in the field of medicine. Nowadays, we have nose and throat specialists, stomach specialists, heart specialists, others who treat only nervous and mental diseases, and so on.

Specialization by Task. Division of labor also takes the form of specialization by *task*. The skilled worker is no longer asked to make an article in its entirety. Many tasks that were once done by hand are now done by machinery. The trade of shoemaking, to mention a single example, has almost disappeared because shoes are today manufactured in large factories with the use of elaborate and expensive machinery, the work being performed by operations which bear little resemblance to shoemaking of olden times. In the manufacture of clothing, in the meat-packing industry, in the construction of automobiles, and in dozens of other important industries, a similar situation exists.

In large-scale clothing manufacture the tailoring trade has been

broken up into a great many separate tasks, so that some 30 to 60 operations, each performed by a different worker, are now necessary in making a coat. In some shoe factories as many as 240 processes, performed by 100 different workers on 150 different machines, may go into the manufacture of a pair of shoes. According to Mr. Ford, 7882 different tasks aided in the production of the "Model T" Ford automobile. Division of labor by task, we may safely say, is one of the leading forms of specialization, and one that is quite definitely on the increase.

Specialization by Stages. A third type of specialization is by *stages* or complete processes. In transforming raw materials into finished products the work often takes place under the supervision of several different and wholly unrelated producers, each of whom considers an article finished when he has made his contribution to its progress toward the form in which it is to reach the ultimate consumer. In the manufacture of shoes the productive process begins with the raising of cattle, and the cattle producer sells his product with the feeling that his task is finished. The cattle, however, go to a meat-packing establishment where, among other things, the hides are removed and sold to a tanning establishment. So far as he is concerned, the meat packer is now through. The tanner also has finished his job when the hide has been transformed into leather and sold to the shoe manufacturer.

The shoe manufacturer himself is merely a step in this long process, for, although he feels that his function has been performed when the shoes are properly made and ready for use, there is still another process to be gone through. The shoes must pass from the manufacturer into the hands of a merchant, and not until the latter has delivered them to his customer has the production of a pair of shoes actually been completed. Nevertheless, through this long journey from the raw material to the finished and marketed product, there have been several stages at each of which the job was apparently complete.

Geographical Specialization. A fourth and very important form of division of labor is known as *geographical* or *territorial* specialization. Specialization of this kind is often based upon differences in natural conditions. Most of the cotton produced in the world is grown in southern United States because the soil and climatic conditions are favorable to its growth. For similar reasons raw silk is produced in Japan and coffee in Colombia and Brazil. Certain natural resources

such as coal, iron ore, and petroleum are, as a matter of course, produced in those regions in which they have been deposited by nature. Thus certain areas near Lake Superior specialize in the production of iron ore, a limited region in the State of Pennsylvania devotes most of its economic effort to the mining of anthracite coal, and some parts of Texas and Oklahoma specialize in the exploitation of the great petroleum deposits of those states.

In addition to specialization on the basis of natural deposits or advantages of soil or climate, there is geographical specialization that results from developed or artificial conditions. Paterson, New Jersey, is famous as a silk center. Akron, Ohio, specializes in the production of rubber goods. Most of the cotton and woolen cloth manufactured in the United States in the past century was made in New England, though there is now apparent a tendency to move cotton mills to the South in order to be near the sources of raw material and cheap labor. Shoe manufacturing has been concentrated in New England in the past, but is now proceeding westward. In some instances there have been good reasons for locating a given industry in a given city. The availability of water power has often been the explanation, but with the development of steam (and, more recently, of electricity) as a source of power this reason no longer exists for some localities specializing in the manufacture of certain goods. In the case of industries moving from one region to another, we have evidence that in the long run specialization on the basis of natural conditions will prevail. For example, it is sensible from the economic point of view to manufacture cotton cloth in the South near the basic material, provided other conditions are satisfactory, rather than in an area to which the raw cotton must be transported.

THE GAINS OF SPECIALIZATION AND THEIR ATTAINMENT

Since specialization is so widespread an economic phenomenon, it is obvious that it must bring certain gains, or it would not have been adopted so widely. The chief social gains to be noted are the *greater variety and greater quantity of goods* which result from specialization of the types that have been mentioned. Industrial progress consists very largely of finding new and better ways of production. Specialization has come in response to the demand for improved methods. It has unquestionably resulted in greatly enlarged production, lessened costs of production, and higher standards of living for society in general. The gains that are realized from an

application of the principle of specialization may be accounted for in a number of ways, which we shall proceed to examine.

Fuller Utilization of Individual Abilities. Specialization enables a worker to undertake a task that is especially suited to his peculiar ability. Some people are particularly adapted for mental and others for physical work. The average college professor would make a poor showing as a farm laborer, and the farm hand would not be much more likely to succeed in the college lecture room. Specialization of various kinds makes it possible for almost any person to find a place where his talents, physical or mental, great or small, can be utilized to advantage.

A very high degree of specialization, such as is employed in automobile plants turning out hundreds of thousands of cars a year, makes it possible to provide work for the weak and physically handicapped who, in the absence of extensive division of labor, would find it difficult or perhaps impossible to be self-supporting. Mr. Ford has described the physical requirements of the 7882 different jobs which, as we have noted, contributed to the production of the "Model T" Ford car. "Of these, 949 were classified as heavy work requiring strong, able-bodied and practically physically perfect men; 3338 required men of ordinary physical development and strength. The remaining 3595 jobs were disclosed as requiring no physical exertion, and could be performed by the slightest, weakest sort of men. In fact, most of them could be satisfactorily filled by women and older children. The lightest jobs were again classified to discover how many of them required the use of full faculties, and we found that 670 could be filled by legless men, 2637 by one-legged men, 2 by armless men, 715 by one-armed men, and 10 by blind men."¹ It would be hard to find a better illustration of the power of specialization to salvage human abilities which in an unspecialized industrial system would be largely wasted.

Attainment of Great Dexterity. In most manual operations great skill is acquired only through long training, and retained only by constant practice. The idea that practice makes perfect is an old one, and its application to economic processes has been recognized by writers for hundreds of years. Xenophon, for example, saw that specialization made for proficiency and could be employed profitably when the demand for a product was great. "In small towns,"

¹ Henry Ford, in collaboration with Samuel Crowther, *My Life and Work*, New York, Doubleday, Doran & Company, Inc., 1923, p. 108.

he wrote, "the same workman makes chairs and doors and plows and tables, and often this same artisan builds houses, and even so he is thankful if he can only find employment enough to support him. And it is, of course, impossible for a man of many trades to be proficient in all of them. In large cities, on the other hand, inasmuch as many people have demands to make upon each branch of industry, one trade alone, and very often even less than a whole trade, is enough to support a man; one man, for instance, makes shoes for men, and another for women; and there are places even where one man earns a living by only stitching shoes, another by cutting them out, another by sewing the uppers together, while there is another who performs none of these operations but only assembles the parts. *It follows, therefore, as a matter of course, that he who devotes himself to a very specialized line of work is bound to do it in the best possible manner.*"²

Specialization, then, permits a person to devote sufficient time to the practice of a given trade or task to enable him to gain a mastery of that trade or task. The degree of skill that can be attained by steady practice is sometimes little short of phenomenal. Take, for example, the ability to use the typewriter. Anyone who has undertaken to learn typing will acknowledge that at first it is a slow and difficult process; and yet it is quite easy for the practiced typist to write a hundred or more words a minute, and at the same time read stenographic notes. The butcher, the baker, the candlestick maker—each of these artisans is likely to be a better workman by reason of being a specialist in his line.

Though we have dealt here chiefly with manual dexterity, it should be remembered that there is a dexterity of the mind which plays a part in most industrial operations, and a predominant part in certain types of work. The dentist's skill, acquired through long practice, consists as much in knowing whether to pull or fill the tooth as in performing the operation once it is decided upon. The lawyer's knowledge, gained through pleading hundreds of cases of a particular kind, is probably as useful to his client as the gift of oratory that enables him to sway juries. In like manner, the dexterity of the carpenter, the plumber, and the taxi driver is a mental as well as a physical dexterity, and one which is usually most fully developed

² Xenophon, *Cyropaedia*, London, William Heinemann, Limited, 1914, Book VIII, ii, 5; Loeb translation, p. 833.

under conditions of specialization. For practice makes perfect in mental operations no less than in physical.

Simplification of Tasks. Specialization renders unnecessary the long periods of training that used to be essential in the mastery of certain trades. There was a time when young men served apprenticeships of three, four, or more years, in order to qualify as carpenters, bricklayers, or machinists. But the work of such artisans has, in many fields, been subdivided and simplified so that raw recruits may now be trained in a few days to perform the simple tasks that fall to their lot in the specialized industry of the present day. Henry Ford said that 48 per cent of the jobs in his plant could be learned in one day, and 36 per cent in one day to a week. The tendency of modern economic life is so definitely toward simplification of task that a long apprenticeship need now seldom be served in order for a worker to fill the ordinary factory job acceptably.

Because so many of our industrial tasks have been greatly simplified, they have been brought within the capacity of some members of society who, though physically sound, are mentally not sufficiently agile to perform complicated operations. Thus, some workers who would otherwise be day laborers are enabled, under conditions of advanced specialization, to perform more pleasant and more profitable tasks as operatives of semi-automatic machines, or to serve in other capacities that demand but little mental exertion. We have referred in an earlier paragraph to the ability of the physically handicapped to fill certain positions in specialized industry.

Continuity of Operation. A century and a half ago, it was not an uncommon thing for workmen to divide their time between manufacturing and agriculture, spending a part of the day spinning yarn or weaving cloth, and the remainder cultivating their small farms. Adam Smith and other early writers on economics remarked upon the wastefulness of this sort of arrangement, involving as it did the loss of time in moving from one job to another.

Present-day specialization eliminates this type of waste to a large extent, since specialization permits of economies through continuity of operation. Performing as he does, a single task, the specialized worker need not lay down one tool and pick up another, for his job requires the use of only one tool. Likewise, there is no necessity for adjusting his mental attitude to a new task since, under specialized industry, he is likely to perform the same task almost continuously throughout the day. Finally, continuity of operation may be realized,

and its benefits reaped, through the specialization of machinery. If a machine is given over to the continuous production of a single grade of commodity—a loom, let us say, used only for weaving cloth of a particular kind—there is a saving of the time and energy that would be needed to reset the machine if it were being employed in making first one grade and then another of the good. Consequently, more units of the product can be turned out in a given period of time under specialization than under conditions of non-specialization.

Greater Mobility of Labor. Since specialization results in the simplification of tasks, it adds to the ease with which workers may move from one job to another. Much of the work in industry is now done on semi-automatic machines, and the general similarity of machine operation enables a machine operator in one industry to move at times into a different industry and take up, without long training, the operation of a machine requiring the same type and grade of skill, and yet turning out a very different product. Professor Marshall points out that "most of the operatives in a watch factory would find machines very similar to those with which they were familiar, if they strayed into a gun-making factory or sewing-machine factory, or a factory for making textile machinery. A watch factory with those who worked in it could be converted without any overwhelming loss into a sewing-machine factory; almost the only condition would be that in the new factory no one should be put to work which required a higher order of general intelligence than that to which he was already accustomed."³ The emergency demands of World War II demonstrated our ability to convert much of our industrial plant and labor to the production of new types of goods; and post-war reconversion showed that we could speedily go back to peacetime production, once the need for wartime goods had passed.

However, the narrowly specialized worker is likely to find it a difficult task to get work in times of depression, because the job he is able to do can be done only in conjunction with many other operations in a plant which may be shut down. This disadvantage of specialization will be touched upon later in the present chapter.

Employment of More Machinery. Specialization leads to the greater use of machinery in production. Division of labor consists of splitting up jobs, and in this process of dividing jobs into several

³ Alfred Marshall, *Principles of Economics*, London, Macmillan & Co., Ltd., 1930, 8th ed., pp. 258, 259.

parts it is often found that some of the work formerly done by hand can be turned into a machine operation. When the movement to be made is a simple one, and when it must be repeated hundreds of thousands of times a day, it is usually possible to entrust it to the swift, sure performance of a machine. And it is ordinarily profitable to do so, unless labor happens to be very plentiful and consequently cheap, or capital is scarce and the interest rate high. If absolute accuracy of movement is important, there is additional reason for employing machinery, for even the most skillful worker cannot repeat a movement as exactly as it can be repeated by a well-constructed machine. The part played by accuracy in the metal-working trades is emphasized in a later section dealing with the manufacture of interchangeable parts.

Since specialization leads to lower prices for commodities, and since these lower prices make it possible to dispose of very large quantities of goods, it is sometimes feasible to employ an expensive machine which would have been entirely too costly had specialization not been developed to a high degree. Professor Taussig has cited the case of a machine bought by the International Harvester Company, a machine "whose sole work is to shape poles for wagons and harvesters. The machine cost \$2500; it saves a cent per pole; it is worth while only because poles by the hundred thousand are made each year."⁴ Here we have specialization and large-scale production combining to make possible an economy through the use of highly specialized machinery. It is true, of course, that specialization and large-scale production often go hand in hand, as in the meat-packing and automobile industries; and wherever they are found they provide a powerful stimulus to the invention of labor-saving devices.

Example of Specialization in Meat Packing. One of the reasons specialization results in great economies is that it permits conformity to a principle of scientific management laid down at least a century ago, and more recently emphasized by Frederick W. Taylor and his followers. This principle states that a worker should be given the highest type of work he is capable of performing, and that type only.

The significance of this principle is seen when we realize that in the meat-packing industry the wages of workers range from 72½ cents to \$1.31½ an hour. Needless to say, the \$1.31½ man is a highly

⁴ F. W. Taussig, *Principles of Economics*, New York, The Macmillan Company, 1939, 4th ed., p. 49.

skilled worker, and the $72\frac{1}{2}$ -cent man is not. The principle cited above demands that the \$1.31 $\frac{1}{2}$ worker give all his time to the performance of skilled operations, allowing men less highly paid to carry on work of less importance. In 1904, Professor John R. Commons wrote an interesting description of the tasks performed by workers receiving different wages in the meat-packing industry. With the figures brought up to 1941, the description in part is as follows:

The \$1.31 $\frac{1}{2}$ man is restricted to using the axe in splitting the backbone (splitter); and, whenever a less skilled man can be slipped in at $72\frac{1}{2}$ cents, $75\frac{1}{2}$ cents, $77\frac{1}{2}$ cents, $80\frac{1}{2}$ cents, $84\frac{1}{2}$ cents, $87\frac{1}{2}$ cents, $91\frac{1}{2}$ cents, and so on, a place is made for him, and an occupation mapped out. In working on the hide alone, there are a number of positions at different rates of pay. A $77\frac{1}{2}$ -cent man pulls off the tail. The knife of the \$1.08 $\frac{1}{2}$ man cuts a different texture and has a different "feel" from that of the \$1.17 man. Skill has become specialized to fit the anatomy. In this way, in a gang of 74 men, slaughtering and dressing 110 cattle an hour, there are but 10 men paid \$1.31 $\frac{1}{2}$ an hour, 2 men paid \$1.17, while the number getting $84\frac{1}{2}$ cents and over is 36, and the number getting under $84\frac{1}{2}$ cents is 38.⁵

This illustration shows quite clearly that adherence to the principle stated above results in definite economies. As an evidence of industrial progress, we may note the fact that when Professor Commons wrote his article in 1904, it required 230 men to kill and dress 105 cattle in an hour. At the present time, a gang of 74 men handles more cattle (110, to be exact) in an hour. It is increased productivity such as this that permits the payment of higher wages to workers. In the meat-packing industry wages have increased very materially, in many instances more than 100 per cent, since 1904. But this does not mean the ability to purchase twice as much goods as formerly, since the cost of living has also increased, though not to so great an extent as wages.

Manufacture of Interchangeable Parts. Another important industrial principle, which is closely related to specialization, is that of standardized or interchangeable parts. Again the principle is not a new one, though it has in recent years been employed more extensively than ever before. But as early as 1813, Simeon North, the first official pistol manufacturer to the United States government,

⁵ Professor Commons' article was entitled "Labor Conditions in Meat Packing and the Recent Strike," and appeared in the *Quarterly Journal of Economics*, vol. 19, p. 324.

was awarded a contract for 20,000 pistols, to be manufactured so that "the component parts of pistols are to correspond so exactly that any limb or part of one pistol may be fitted to any other pistol of the 20,000."⁶ And Professor Marshall tells of the representative of an American watch factory, who, at the Invention Exhibition held in London in 1885, "took to pieces fifty watches before some English representatives of the older system of manufacture, and after throwing the different parts into different heaps, asked them to select for him one piece from each heap in succession; he then set these pieces up in one of the watchcases and handed them back a watch in perfect order."⁷

Probably in no industry has this principle been used more widely than in the manufacture of automobiles. A Ford, Chevrolet, or Plymouth car is so much like another Ford, Chevrolet, or Plymouth of the same model that a broken part may be replaced by a new part at very slight cost and with almost no loss of time. A similar advantage is enjoyed in the case of a great many commodities. Modern industry has been standardized or made uniform. This uniformity has been possible largely through the machine process, and the machine process in turn is tied up very definitely with specialization of labor.

It is true that specialization could exist to some extent in an industrial society which used but little machinery, but the fact is that specialization and the machine process have marched forward together in the business world. As a consequence, the consuming public buys goods at lower prices than formerly, enjoys the use of some goods which could not be made without the aid of machinery, and is able to replace broken parts of automobiles, farming implements, watches, radio sets, and countless other articles without delay and with very little expense.

Specialization and Large-Scale Production. Since specialization and large-scale production are so closely related, it is difficult to separate their advantages and determine which are attributable to each. An examination of the benefits of large-scale production (to be discussed in a later chapter) discloses the fact that at least some of these gains are due primarily to the use of specialization in large-scale production.

⁶ Related in L. P. Alford, *Laws of Management*, New York, Ronald Press Company, 1928, p. 107.

⁷ Alfred Marshall, *Principles of Economics*, p. 258, f.n.

Specialization and Transportation. Adam Smith and other writers have emphasized the fact that specialization is limited by the extent of the market. The more extensive the market—that is, the larger the quantity of a good that can find buyers—the stronger will be the tendency to specialize. Clothing manufacturers have found it profitable to break up the old *trade* of tailoring into scores of minute *tasks*; but such specialization is profitable only because the product sells throughout the country by hundreds of thousands of units.

An extensive market, in turn, often depends upon the ability to send goods to distant points and offer them there at attractive prices. This is clearly seen in the field of international trade. Automobiles, for example, are made under highly specialized conditions in the United States and exported profitably to all parts of the world. The development of speedy and cheap highway, railway, and ocean transportation has made possible this expansion of the automobile market to world dimensions, and the expansion has led to the almost incredible degree of specialization that prevails in the automobile industry. If, then, specialization is limited by the extent of the market, it is equally true that the extent of the market is limited by the transportation facilities available at a given time.

INDIVIDUAL AND SOCIAL EFFECTS OF SPECIALIZATION

Monotony of Labor. But specialization is not without its disadvantages. It is particularly likely to have harmful effects upon labor, the human factor in production. One serious disadvantage of our present industrial system is the monotony and irksomeness of labor performed under highly specialized conditions. We have seen that many workers today are engaged in performing *tasks*, and often very minute ones, instead of carrying on the more general work which is done under conditions of specialization by *trades*.

It is one thing for a tailor to design and construct a suit of clothing, and quite another for a worker in a modern clothing factory to devote his entire working time to making buttonholes. And yet a large percentage of our industrial workers today are engaged in tasks which to many persons must be distinctly uninteresting. For example, when one buys a padlock, one receives with it two keys on a small wire ring; and in lock factories in various parts of the country young men spend their time, eight hours a day, five days a week, putting these keys on rings.

Thousands of workers throughout the United States contribute

to the productive process by supervising semi-automatic machines. Into the machines are fed, in some cases, strips of brass or other material from which are stamped small metal disks to be used in certain branches of manufacture; and the worker's job is merely to see that these machines do their work continuously and accurately. It is no wonder, then, that many industrial employees work with one eye on their machines and the other on the clock, and that they regard the working day as a certain amount of time to be expended and done with.

The evils of monotony are generally recognized by managers; and while some employers regard monotony as unavoidable, others are doing their best to counteract its ill effects by providing rest periods at intervals during the day. Thus the worker is enabled to get his mind off his task for a few minutes, and comes back to the job refreshed both physically and mentally. It is difficult, if not impossible, to determine how seriously workers are affected by monotony, but there can be no doubt that its dangers have often been exaggerated by overzealous writers. Work that might be deadly to some does not appear to injure others, and those who would be affected detrimentally often escape by not having to do the kinds of jobs that would be both distasteful and harmful to them.

Loss of Interest in Job. Another disadvantage of specialization is its tendency to stifle the instinct of workmanship. The old-time shoemaker who could produce a shoe, having nothing but the raw materials and his tools to start with, was able to exhibit his product as a piece of creative work. In some instances, at least, he took an honest pride in being a master craftsman; and, in addition to receiving pay for the shoes he had made, he might receive also a word of praise for the excellence of his work. But the modern shoe operative has little chance to feel the glow that goes with a sense of being a creative artist. He makes not a whole shoe, but perhaps a fiftieth part of a shoe. He never comes into direct contact with his customer, and in all probability never sees the finished product in the manufacture of which he has had a part. Such a situation means a lessening of interest on the part of the worker, and a lack of realization of the true significance of his contribution to society in carrying on faithfully his daily task.

Here, again, progressive employers have attempted to remedy the evil. In some cases workers are taken on trips through the plant and are given an opportunity to hear talks and see motion pictures that

describe the entire process of manufacture; and thus, in some small measure at least, they are made to feel that they have a definite and important share in the productive process.

Narrowing Effect of Specialization. Another danger of specialization, closely related to the one we have just discussed, is its narrowing influence on the workers under the conditions of extreme subdivision of labor. The difficulty is that specialization often means the continuous use of one part of man's ability, and that part only. The result is an overdevelopment of certain faculties of the worker, to the neglect of other faculties. A workman under these conditions, having devoted perhaps twenty or thirty years to the performance of a single task, is pretty certain to be a one-sided individual.

It has been suggested that this disadvantage might be overcome to some extent by training every man for at least two types of work, so that, in addition to avoiding the monotony of performing the same task over and over again without relief, he might develop more of his talents than are usually developed under modern industrial conditions. Something has been accomplished along this line, but much remains to be done. Fortunately, the development of minute specialization by task has been accompanied by a reduction in the number of hours that make up the customary working day. The narrowing effects of highly specialized work may be largely counteracted if, when the toil of the day is over, a workman has at his disposal a very considerable amount of free time in which he may engage in study, in some type of work that is much to his liking—say home gardening or home carpentering—or in play, pure and simple.

Increased Interdependence. Specialization results in increased interdependence between individuals, communities, and nations, and this interdependence sometimes has undesirable results. Under simple economic conditions, with the family producing virtually everything it required, there was little or no dependence upon others. Nowadays, a failure of the cotton crop of the South would affect not only the farmers engaged in raising cotton, but the merchants who live by selling groceries, hardware, clothing, and other necessities to cotton producers, the railroads that depend upon the prosperity of the cotton belt for patronage and consequent revenues, and, indeed, all who are associated in a business way with this great economic area.

The inability to get raw material, cotton, might easily cause the

closing of cotton mills in New England, or even in Europe, as was the case during the Civil War. On the other hand, should British manufacturers be unable to find markets for their cotton goods, the effect would be to reduce materially the exports of cotton from the United States to England, and perhaps bring the price in this country far below the actual cost of production.

The dangers of an economic society in which there is a high degree of interdependence can be seen in an examination of the long, dreary business depression that had its beginning in 1929. At one period in this depression some twelve million men and women—one-fourth of the total labor force of the United States—walked the streets looking for work. They were dependent upon business enterprisers for employment, and these enterprisers had no jobs to offer since they saw no chance, in the face of the depression, to make and sell their products at prices sufficiently high to cover all costs of production. Something that had happened to our complicated economic machinery, upon which these millions depended for a livelihood, brought large portions of that machinery to a full stop, rendering these would-be workers penniless and dependent upon the government—local, state, or federal—for relief funds to keep them from actual starvation. In a less complicated, less specialized economic society, in which families were largely self-sufficient, producing chiefly for their own use rather than for exchange, an economic collapse of this kind would be much less likely to occur. On the other hand, such a society would have to content itself, other things being equal, with a lower standard of living in normal times than could be enjoyed by the more highly organized, specialized, interdependent society.

Separation of Workers from Ownership of Tools and from Product. Specialization, as it works out under the private ownership of capital, results in the separation of the worker from both his tools and his product. Under present-day conditions, as we have just noted, most workers are dependent upon other persons to provide them with jobs. But they also look to others for the tools with which to perform their tasks. When industry was in a simple stage and the machinery required was inexpensive, the worker could often be far more independent than he now is. Manufacturing today is carried on with the aid of costly machinery which the individual workman can neither buy nor operate alone, and so he is compelled, in good times and bad alike, to look to an employer for a job; and

when times are bad, as we have seen, the jobs of many workers vanish as into thin air.

Wholly apart from the possibility of being unemployed because of his dependence upon capitalist enterprisers, the worker finds it hard, if not impossible, to know whether he is receiving as much pay for his services as he should have. It is commonly said that the worker is entitled to whatever he produces. Under simple industrial conditions there is little difficulty in knowing what the individual worker produces. When the old-time shoemaker completed his pair of shoes, the finished shoes were his product, and he was at liberty to sell or exchange them for something else. The modern shoe operative, whose task may consist merely of tacking on heels or sewing in tongues, finds it much more difficult to ascertain just how much his product amounts to. He is likely to be compelled to take the employer's decision in the matter, unless, through labor union action, he has a part in making this decision.

Many problems have arisen, and are constantly arising, in connection with the size of the share of the product that goes to the worker. Strikes have been fought time and again over the question of wages, which is simply the question of the share of the product the employee is to receive for his assistance in the productive process.

Benefits to the Workers. All of the disadvantages here noted are likely to have a detrimental effect upon the workers as individuals, and some, as has been seen, affect society in general. There are several benefits to workers which have been brought about largely through specialization, and which tend in some degree to offset these disadvantages. One of these benefits is shorter hours. A few decades ago a working day often consisted of ten hours, and sometimes of eleven or twelve. Nowadays eight hours of work are all that most industrial workers in this country are expected to put in, in a single day. Indeed, following President Roosevelt's introduction of the "New Deal" in 1933, thirty-five or forty hours constituted the working week in some industries, and prior to World War II organized labor waged an aggressive campaign for a thirty-hour week. The fairly short working week of today is the result of several causes, one of which is the insistent demand for fewer hours of work in view of the increasing monotony of labor. The reductions in hours that were introduced in 1933 represented an attempt to "spread work," to the end that a progressively smaller number of those thrown out of work by the depression should remain wholly unemployed.

It seems probable that forty hours will constitute the "standard" working week for some years to come.

Specialization has resulted also in the abolition of much heavy, dirty, disagreeable work which was formerly done by human beings but is now being performed by machinery. Yet another advantage is the larger income (not only *money*, but *real income*) of today as compared with that received by wage earners of the nineteenth century. Specialization, as we have seen, increases the output of commodities and services, and this increase makes possible higher standards of living for workers as well as employers.

1. Show, by means of illustrations, that specialization in merchandising, manufacturing, and agriculture tends to increase with the growth in population.
2. Four forms of specialization are noted in this chapter. Name these forms, and give an illustration (not cited in the text) of each form.
3. Give figures showing that specialization by task has been utilized to a great extent in the clothing and shoe-manufacturing industries.
4. Give at least five examples of "geographical specialization," and in each case try to explain the reason for specialization being adopted or continued.
5. What two important social gains are realized through utilizing the principle of specialization?
6. Explain the manner in which specialization lessens the waste of human ability in economic activity.
7. What has specialization to do with the mechanization of industry?
8. The text mentions "a principle of scientific management laid down at least a century ago, and more recently emphasized by Frederick W. Taylor and his followers." State this principle.
9. Precisely what is the significance of specialization in meat packing, as described in the text?
10. What is meant by "interchangeable parts"?
11. Describe Professor Marshall's illustration of perfection of manufacture in the watch industry.
12. What are the advantages, to the consumer, of interchangeable parts?
13. Explain how the practice of specialization may conceivably lead to monotony of labor.
14. How may monotony of labor be counteracted?
15. Why does the development of specialization lessen the worker's interest in his job?
16. Discuss the dangers of economic interdependence.
17. What connection, if any, is there between specialization and a worker's inability to get a job?
18. Does specialization lead to industrial strife? Explain.
19. Discuss *hours* and *wages* in connection with specialization.

20. How does specialization result in the abolition of "much heavy, dirty, disagreeable work"?

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7. *The Organization of Business*

The business enterpriser is the person, or group of persons, that owns a business and consequently assumes the responsibility for its operation. Directly or indirectly, the enterpriser determines the policies of the business, and in any event he bears the risks of the enterprise. He is, in many respects, the leader in the undertaking, and, if we may believe an observer who is well informed on managerial problems, "Wise leadership is more essential to successful operation than extensive organization or perfect equipment."¹ For the enterpriser, more than any other factor of production, is in a position to make or break the business, since his decisions may make the difference between success and failure.

The Function of Risk-Bearing. Though an enterpriser is an owner or part owner of a *business*, he does not necessarily own all or any of the land, labor, and capital employed in the enterprise. However, he does undertake to pay rent, wages, and interest to the owners (who *may* include himself) of these several agents of production; and he takes the chance that he will be able to sell his product at a price sufficiently high to reimburse him for these payments. Primarily, then, the business enterpriser is a *risk-bearer*. He may, in addition, manage the business, in which event he (as an enterpriser) hires himself to manage his business, and pays himself *wages* just as he pays wages to his other employees. He may also own all or part of the land and capital used in the business, paying himself *rent* because he is a landlord, and *interest* because he is a capitalist. If the business is successful he receives a payment in the form of *profits*, *because* he is an enterpriser.

This may seem to be a somewhat artificial analysis, but it is highly important to distinguish clearly between the various *functions* performed by the owners of the several agents of production, and to

¹ L. P. Alford, *Laws of Management*, New York, Ronald Press Company, 1928, p. 49.

realize that all of these functions *may* be performed by a single individual. This is particularly true of small businesses. In the field of agriculture, for example, the small-scale farmer is commonly enterpriser, landlord, laborer, and capitalist. But our present interest is in the enterpriser *as such*; and the point to be emphasized here is that every person who owns a business in whole or part is, by virtue of that fact, a business enterpriser, regardless of whether he does or does not perform any other economic function in the undertaking.

THE INDIVIDUAL PROPRIETORSHIP

Frequently the business enterpriser conducts his business "on his own," but quite as often, in our modern economic society, the form of business organization is a partnership or a corporation.

The *individual proprietor* is the person who undertakes, by himself, the responsibility of carrying on an enterprise. This form of organization is most common in small businesses which require only a limited amount of capital. The average farmer, as we have already noted, bears all the risks of his business, though there are some instances of farming carried on by partnerships or corporations.² Most professional men are individual proprietors; that is to say, they practice medicine, law, or some other profession, without sharing the ownership of the enterprise with other persons. The corner grocer is not uncommonly an individual proprietor, although more and more the corporate form of organization is being adopted in this field of merchandising. There have been in the past and still are many manufacturers who are sole owners of their respective businesses, but these are usually, though not always, enterprisers on a relatively small scale. Ordinarily, the individual proprietor not only *owns* but *manages* his business.

Advantages of the One-Man Business. Certain advantages attach to this type of business organization. When a man is in business for himself, he is very likely to give his best efforts to the advancement of the enterprise. He gets pleasure from the knowledge that he is in business for himself, and enjoys as an enterpriser a freedom of action, and if successful a sense of achievement, not experienced by an employee. Indeed, it would not be difficult to find many individual

² An interesting account of a large farming project conducted under the corporate form of organization is given in Department Circular No. 351 of the United States Department of Agriculture, Washington, August, 1925. The circular is entitled *Centralized Management of a Large Corporate Estate Operated by Tenants in the Wheat Belt*, and is by Walter H. Baumgartel.

proprietors, particularly among small shopkeepers and farmers, who could earn somewhat larger incomes by selling their services to employers who conduct larger units of business. But the independence that goes with being in business for oneself brings a satisfaction for which many men are willing to pay in the form of smaller income.

Objections to This Type of Organization. There are, on the other hand, certain disadvantages to this type of organization. The amount of capital an individual is able to get together for the operation of his business is sometimes very restricted; and it is not always possible for him to expand the enterprise as rapidly as he might like, because of limited funds. Though an individual proprietor may be master of his trade or profession, there is a good deal to be said for specialization in management as well as in the physical operation of a plant. Two heads are often better than one, and the individual proprietor has to rely upon his own judgment (which may not always be sound), unless he decides to hire one or more experts to help him manage his business.

There is the further disadvantage of "unlimited liability." If the business should prove to be a failure and the claims of creditors be greater than the assets, the creditors would be entitled by law to force the sale of the enterpriser's personal property, as well as his business assets, to collect their just claims. The individual proprietor might, under these conditions, lose his home and whatever other physical possessions he happened to have.

THE PARTNERSHIP

A business partnership is an association of two or more individuals who join forces for the purpose of conducting business. The partnership is based upon a written, oral, or implied contract—usually, of course, the first of these—setting forth the terms upon which the partnership has been formed, the rights and responsibilities of the several partners, the division of profits, and other details. A partnership usually consists of but a few members, each of whom is selected for the particular contribution he is able to make to the organization. The partners are sometimes chosen with the idea of getting a large amount of capital for use in the business. In the partnership, as in the case of the individual proprietorship, there is the incentive to work hard for the success of the business, since the several partners

in so doing are working at the same time for their own personal advantage.

Some Disadvantages of the Partnership. The partners usually, though not always, take an active part in the management of the enterprise, and receive salaries for their personal services, as well as a return on the funds which each has invested, and profits when the business prospers. Like the individual proprietor, they are subject to demands upon their personal fortunes in case of business failure, unless they have taken out a "limited" form of partnership, which serves as due warning to creditors that the liability of certain members of the partnership (though not of all members) is no greater than the amount they have actually invested in the business. Each partner, then, with the exception of "limited" partners, is responsible for the actions of his business associates, and each is liable for the total indebtedness of the partnership and not merely for his proportionate share of such indebtedness.

A partnership is automatically dissolved upon the death of one of the contracting parties, and this fact is thought by some to be a serious disadvantage, to which the corporation, as we shall see, is not subject. There is the further disadvantage that partners may fail to agree upon policies to be adopted by the concern, whereas an individual proprietor suffers no handicap of this kind. Or, again, the partners may not be able to reach their decisions in important matters as promptly as an individual proprietor; and delays in determining courses of action in business are sometimes disastrous.

Example of a Successful Partnership. The experience of the Colonial Printing Company, operating in a medium-sized Pennsylvania city, illustrates the possibilities of the partnership form of organization for a small business. It happened that three young men who were working for a printing concern decided to go into business for themselves. The trio consisted of George J. Harness,³ the business manager of the older concern; James Sullivan, who had charge of the typesetters; and John Williams, an expert pressman. It will be noted that each of these men had a type of skill which made him valuable to the new business, for Mr. Harness was able to handle the office details of the new printing company, making estimates on printing jobs, taking care of the finances, and so on; Mr. Sullivan directed the work of setting up the various jobs in attractive type

³ The illustration is genuine, though the names here used are fictitious.

form; and Mr. Williams was able to see to it that the actual printing was well done.

In addition to these contributions to the organization, each of the three partners was able to get together a small amount of money, so that the final result was an organization with sufficient capital and such types of ability as would enable the business to be conducted satisfactorily. The success of this concern, which now has some hundreds of employees, is evidence that the partnership form of business organization, if adopted intelligently, may be exceedingly advantageous.

THE CORPORATION

Most large concerns, and many small ones, have adopted the corporate form of business organization instead of the individual proprietorship or the partnership. "A corporation is an artificial person, created or authorized by the law for some particular purpose or purposes. . . . [The] members, or stockholders, are not the corporation. They compose it, but the corporation has a name, an entity, and an existence of its own, entirely apart and distinct from that of these members."⁴

Great Size of Some Corporations. The larger number of participants in ownership of the corporation, as compared with the individual proprietorship and partnership, means ordinarily that much larger funds are available in a corporation for the purchase of capital than in any other form of private business organization, so that an incorporated business may be conducted on a huge scale. The owners of the business are called stockholders, and in many instances the shares of stock are sold to the general public. Thus, through the purchase of one or more shares of stock, an individual may become part owner of the Standard Oil Company of New Jersey, the General Motors Corporation, or any of several thousand businesses organized on a corporate basis.

The largest railroad system in the United States is the Pennsylvania Railroad, the largest public utility is the American Telephone and Telegraph Company, and the largest industrial concern is the United States Steel Corporation. In the case of none of these giant corporations does any single stockholder own as much as one per cent of its outstanding stock. But these and other great businesses, organized

⁴ Thomas Conyngton and Louis O. Bergh, *Business Law*, New York, Ronald Press Company, 1926, p. 231.

on the corporate basis, have been able to sell their securities to large numbers of stockholders, and have thus collected enormous sums of money with which to buy equipment and carry on operations. The Pennsylvania Railroad, with approximately 217,000 stockholders, had in 1947 gross assets totaling more than two billion dollars. Corresponding figures for the American Telephone and Telegraph Company were 712,000 stockholders and nearly eight billion dollars in assets; and for the United States Steel Corporation, 228,000 stockholders and a little over two billions of assets.

Ready Transfer of Ownership and Limited Liability. The corporate form of organization not only brings together under a single management great quantities of capital (buildings, machinery, and other equipment), but also makes it easy for the average person to convert his surplus income into investments. The New York Stock Exchange, the New York Curb Exchange, and local exchanges in our large cities were organized to facilitate the purchase and sale of securities. The ease with which one may become a stockholder is matched only by the readiness with which he may sell his holdings and withdraw from the market if necessity arises; for shares of stock are readily transferable, and people can always be found ready to sell shares of a given stock if the price offered is high enough, and others ready to buy if the price is sufficiently low. The shares of different concerns vary greatly in price, so that shares may always be found to fit the purse of the would-be investor, even though he has only fifty or a hundred dollars to spend. Thus it is easy for those who could not finance a business themselves to go into business on a small scale by buying a part-ownership in a corporation through the purchase of shares of stock. And the savings of the many, gathered together in this way, plus the funds collected from larger investors, make it possible to build up gigantic business corporations.

A further advantage of the corporation is the fact that the liability of the stockholders is limited to their actual investment in the business, so that there is no danger of the loss of other property belonging to a stockholder, through a failure of the corporation. In the case of national banks and some state banks, however, the stockholder was long held personally responsible not only to the extent of his original investment, but in addition to an amount equal to the par value of the bank stock in which he had invested. Of course, the purpose of this "double liability" was to protect the depositors who had entrusted their money to the banks for safekeeping. The stockholders were thus

made responsible for the way in which the affairs of the bank were conducted; and if the directors of a bank (who, of course, were elected by the stockholders) indulged in unsound banking practices and the bank closed its doors, each stockholder had to pay the penalty for the unfortunate choice of directors by meeting an assessment equal—if so much was needed to pay off the depositors—to the amount of his holdings in bank stock.

In the hundreds of bank failures that took place in 1929–33, the double-liability provision was invoked in many cases, and sometimes it brought financial disaster to those who had bought bank stock with the feeling that of all possible investments nothing could be safer than stock in a national bank. Thus, the burden of bank failures was shifted from one group—the depositors—to another group—the stockholders—who often were but little better able to bear it, and who in many instances had never even heard of double liability or, having heard, had not been apprised of its seriousness. As for the more recent past and the future, the situation was changed by the provision in the Glass-Steagall Act of 1933, that “double liability of shareholders of national banks shall not apply to shares issued after the enactment of this Act.”

Permanence of Corporate Existence. There is also the fact that the corporation continues to operate regardless of the survival of its individual members. A single stockholder, or a dozen stockholders for that matter, may die without affecting appreciably the progress of the corporation. Their holdings pass into the hands of other persons, but the business goes merrily on, undisturbed by the change in ownership. Indeed, as we have already seen, the ownership of shares in a corporation is ordinarily changing day by day, since its shares are dealt in regularly in the “continuous market” that is provided by the organized stock exchanges. Another fact worth noting is the ability of a great corporation to secure the very highest type of managerial ability because, by reason of large resources and the volume of business transacted, it is able to pay handsome salaries to exceptionally able men. Moreover, it is able to offer advancement in position and salary, which does much to retain these men as permanent members of the staff. Here is a type of permanence that is far more important than permanence of ownership.

The Bondholders. The corporation is financed by both bondholders and stockholders. The *bondholders* are those who have loaned

funds to the corporation. In exchange they receive bonds; and these, in the case of mortgage bonds, have back of them, as security, the physical property of the corporation. On these bonds a definite rate of interest is guaranteed, and in the event of bankruptcy the holders of the bonds may have the property of the corporation sold to meet their demands. Their claims take precedence over those of stockholders, in both the payment of interest and the return of principal. Mortgage bonds therefore have a high degree of security of investment, but on this very account the rate of return on the investment is likely to be rather low.

The Stockholders. The actual owners of the corporation are *stockholders*, and of these there are several kinds. We shall note, in our present treatment, only two classes of stockholders—those who have invested in preferred stock, and those who own common stock. The holders of preferred stock are promised a fixed return in the form of dividends, provided the earnings of the business permit the payment of dividends. This return, it should be noted, is not guaranteed, whereas the return to bondholders is definitely guaranteed so long as the corporation remains solvent. Preferred stockholders therefore have less security so far as both principal and income are concerned; but if the profits are large enough to make dividends possible, these stockholders are likely to receive a higher rate of return than the bondholders.

Control of the Corporation. Though preferred stockholders, like common stockholders, are owners of the business, they frequently do not have voting power. The holders of common stock, on the other hand, usually though not always do have a vote in the election of a board of directors. The common stockholders are not paid any return on their investment until bondholders and preferred stockholders have been taken care of. They take considerable risk, therefore, and when they do receive dividends these dividends are great or small depending upon the success of the business. It is correct to say of common stockholders that they have no definite assurance of dividends, but sometimes the return on their investments is large—much larger, indeed, than the return to bondholders or preferred stockholders in the same corporation.

The common stockholders ordinarily have a vote, as has already been indicated, but in comparatively recent years there have been large issues of stock that carries no voting privileges. The issuance of

stock of this kind has been severely criticized by certain economists.⁵ The point is that the holders of non-voting stock are risking their money in an enterprise which, because they have no vote, they are powerless to control. This arrangement places the control of some corporations in the hands of individuals who own considerably less than a majority of the stock.

The Delegation of Authority. The owners of the corporation—that is, the stockholders—delegate to the board of directors the right to determine how the business shall be conducted. This board is elected by the stockholders and is therefore responsible to them. To facilitate its work, the board of directors frequently acts through an executive committee. The executive committee, in turn, delegates authority to a general manager (who is often president of the corporation and chairman of the board), under whom various departments of the business are managed, each, of course, with its respective executive in charge. In many instances the president is clothed with vast powers, and is permitted in emergencies to act without specific authorization from the board of directors. The separation of direct control from ownership is one of the outstanding characteristics of the corporation. In this respect it differs radically from the individual proprietorship and the partnership, in which there is usually a very close relationship between ownership and control.

Stock Dividends. Sometimes, when the condition of a corporation fully justifies the payment of cash dividends, stock dividends are issued in place of cash. A stock dividend consists of additional shares of stock issued without charge to those who are already stockholders, in proportion to their holdings at the time. This plan is frequently adopted so that the earnings may remain in the business and go to purchase new buildings and other equipment, and thus increase the size of the business. Or it may be that old equipment has increased in value to such extent that new stock may properly be issued on the strength of this enhanced value. The United States Steel Corporation, for example, issued a 40 per cent stock dividend on all outstanding common stock some years ago. This meant that every person holding ten shares of common stock received without charge four additional shares.

Another reason for issuing stock dividends is to reduce the market price of the stock. The unencumbered assets (or net worth) of the

⁵ See, in this connection, William Z. Ripley, *Main Street and Wall Street*, Boston, Little, Brown & Company, 1927.

corporation, divided by the number of shares of stock outstanding, gives the nominal value of a share of stock. When a stock is selling at \$500 per share, it is beyond the reach of many investors of modest means. But the price can be brought down to approximately \$250 by the simple process of declaring a 100 per cent stock dividend. Because the number of shares of stock has doubled, the price per share will decline to about half the former price. If those who control the corporation wish its shares to be dealt in actively, they can often stimulate activity by issuing a stock dividend and thus reducing the market price of shares.

The motives behind the issuance of stock dividends are not always apparent, but it is safe to say that in some cases the purpose is to reap large profits without those profits being noticed by the public. Let us suppose that a concern with outstanding stock amounting to \$500,000 is regularly making profits sufficiently large to justify a 20 per cent dividend on this stock. It may be deemed unwise to pay so large a dividend since it would almost certainly subject the corporation to criticism; but if, through the issuance of a stock dividend, the outstanding stock is increased to \$1,000,000, then these profits may be distributed with the appearance of paying only 10 per cent return to stockholders.

It would seem that, in this way, the public might be deluded into thinking a corporation was making only a small profit when its profits in reality were excessive. If the corporation is enjoying the benefits of a protective tariff or other special privilege, it would be distinctly unwise to make public the fact that profits are large, since this knowledge might result in a withdrawal of the favors the concern now enjoys. In the case of public utilities, such as railways, electric power companies, and other organizations whose rates are controlled by public commissions, the concealment of unusual profits might serve to ward off adverse criticism and avoid opposition to higher future rates. Indeed, profits that provided a good return on a reasonable capitalization might be made to appear abnormally low through the issuance of stock dividends, and this situation might easily be made the basis of a plea for an increase in rates.

Moreover, in some lines of business, the appearance of exceptionally high profits might invite unwelcome competition. In an attempt to discourage competition, profits may be made to seem smaller than they really are, by paying dividends partly in cash and partly in stock. Stock dividends possess these advantages if there is a desire to conceal

profits: In the first place, stock dividends are but little understood, and consequently do not attract much attention from the general public; and, second, the existence of this additional stock makes it possible, in the future, to pass out large earnings while the stock seems to be paying only a normal return.

Possibility of Predatory Control. There is also, under the corporate form of organization, the possibility that small stockholders may suffer at the hands of unscrupulous owners of large blocks of stock. There have been instances of predatory control by a few large stockholders who succeeded in making the business appear so unprofitable that small stockholders, fearful that the concern was going to smash, were glad to sell out even at considerable loss. Later developments would show that the pessimistic rumors that had been set afloat were not justified, that the business was on a thoroughly sound and profitable basis, and that the small holders of stock had been sacrificed in order to make fortunes for those in control. Manipulation of this kind often endangers the interests of those least able to bear financial loss, and may result in genuine hardship.

Loss of Employer-Employee Contacts. Another disadvantage of large corporations, which applies to large-scale production in general, is the loss of the personal touch between employers and employees. When business is conducted in small units, it is possible for the owner of a business to know personally many, if not all, of his employees. As the business grows and the number of workers increases, it becomes correspondingly difficult to keep track of the individual worker in the plant and to know something about his needs.

This is especially true in the corporate form of organization, since here the owners of the business are simply stockholders who are chiefly concerned with getting large returns on their investments. The average holder of New York Central Railroad stock knows very little about the wages of the railroad worker, or whether his conditions of employment generally are good or bad. In all probability the lot of mining laborers in some of our coal-mining centers would be promptly improved if the mine owners (holders of stock who live in comfort or luxury in distant cities) knew from personal contact about the miners' working and living conditions. It is true, then, that the corporate form of business enterprise has played a large part in bringing about the present impersonal nature of labor relations,

which has sometimes resulted in both uneconomic and unsocial conditions.

Growth of the Corporate Form of Organization. In view of the increasing importance of the corporation in our business life, we may with profit examine some definite figures dealing with this particular point. Table 5 is taken from reports of the United States Department of Commerce, and the data found therein are consequently official. A study of this table shows the trend of the times in the matter of business organization, so far as the field of manufac-

TABLE 5. TYPE OF OWNERSHIP OF MANUFACTURING ESTABLISHMENTS IN THE UNITED STATES, CALENDAR YEARS 1904, 1909, 1919, 1929, AND 1939^a

Type of Ownership, and Year	Establishments		Wage Earners		Products		Added by Manufacture	
	Number	Per Cent of Total	Average Number	Per Cent of Total	Value (dollars)	Per Cent of Total	Value (dollars)	Per Cent of Total
Corporation:								
1904	51,097	23.6	3,862,698	70.6	10,904,089,307	73.7	4,526,055,158	71.9
1909	69,501	25.9	5,002,393	75.0	16,341,116,634	79.0	6,582,206,117	77.2
1919	91,517	31.5	7,875,183	86.6	54,744,392,855	87.7	21,817,546,565	87.0
1929	101,815	48.3	7,945,478	89.9	64,900,690,398	92.1	29,174,714,978	91.5
1939	95,187	51.7	7,050,684	89.4	52,660,808,652	92.6	22,789,594,409	92.3
Other Types:								
1904	165,083	76.4	1,605,085	29.4	3,889,833,256	26.3	1,767,639,600	28.1
1909	198,990	74.1	1,612,653	24.4	4,330,935,236	21.0	1,947,053,875	22.8
1919	108,588	63.4	1,221,939	13.4	7,673,685,918	12.3	3,224,151,925	18.0
1929	109,144	51.7	893,265	10.1	5,534,173,045	7.9	2,710,568,738	8.5
1939	89,043	48.3	835,883	10.6	4,182,216,148	7.4	1,893,343,710	7.7

^a Source: Bureau of the Census, United States Department of Commerce.

turing is concerned. During the thirty-five years from 1904 to 1939 the proportion of manufacturing establishments conducted by individual proprietorships and partnerships decreased from 76.4 to 48.3 per cent of the total for the United States. The number of wage earners employed by such business men declined from 29.4 to 10.6 per cent of the total workers in manufacturing plants. In value of product turned out by establishments of this kind, there was a decrease from 26.3 to 7.4 per cent; and, finally, in the amount of value added to goods in process of manufacture, the importance of manufacturing concerns conducted by individual proprietorships and partnerships dropped from 28.1 to 7.7 per cent.

The figures for manufacturing organized on the corporate basis have consistently shown increases. In number of establishments

there has been an increase from 23.6 to 51.7 per cent. In wage earners, the 70.6 per cent of 1904 became 89.4 per cent in 1939. In 1904 the value of products made by corporations was 73.7 per cent of the total value of products manufactured in the United States, but by 1939 it had reached 92.6 per cent. The value added by manufacture does not vary greatly from these latter figures; corporations were responsible for 71.9 per cent of this value in 1904, and 92.3 per cent in 1939. These figures show clearly that individual proprietorships and partnerships have declined greatly in this thirty-five-year period while corporations have pushed ahead.

Since, in the manufacturing plants of the United States, we now have under the corporate form of organization almost 90 per cent of the wage earners, producing (in conjunction with land, capital, and management) slightly more than 90 per cent of our manufactured products, and adding to the raw material in the process of manufacture something more than 90 per cent of all values thus added in American manufacturing establishments, the popularity and significance of this form of business organization are obvious.

An examination of the fields of transportation, insurance, banking, and public utilities shows that the corporate form of organization predominates in all of these several lines of economic endeavor. The corporation has had slower growth in the field of merchandising, but the rapid development of great chains of grocery stores, drug stores, and five-and-ten-cent stores is quite in keeping with the corporate movement in other fields. As we have already seen, agriculture alone, with its six million individual proprietors, is resisting successfully the advance of the corporate form of organization which has entrenched itself so firmly in most branches of American economic life.

The Corporation in Important Industries. The facts given above relate to production in general in the United States, but an examination of a number of individual industries shows that the large businesses in particular are usually conducted under corporate management. Doubtless the explanation, in many instances at least, lies in the facility with which the corporation can amass huge quantities of capital. Large-scale operations (the nature of which we shall discuss in the next chapter) usually require large amounts of capital. The corporation is the type of business organization which, aside from public ownership, is best fitted to accumulate capital in great quantities.

Consequently we find, in the ten industries listed in Table 6, a

very pronounced preference for the corporate form of organization. In six of these industries more than 98 per cent of the establishments are under corporate ownership. In only one does the percentage of plants operated by corporations fall below 90 per cent. Moreover, a comparison of 1939 figures with those for 1929 shows that in no case has the percentage of concerns operating under corporate control suffered any appreciable decline. So much for the importance of the corporation, as measured by the proportion of corporate-owned establishments in these large-scale industries.

TABLE 6. MANUFACTURING ESTABLISHMENTS UNDER CORPORATE OWNERSHIP
IN TEN LARGE-SCALE INDUSTRIES, 1929 AND 1939^a

Industry	Total Number of Establishments		Operated by Corporations			
	1929	1939	Number		Per Cent of Total	
			1929	1939	1929	1939
Sugar refining	21	27	19	26	90.5	96.3
Boots and shoes, rubber	22	13	22	13	100.0	100.0
Non-ferrous metals, smelting and refining	75	63	75	62	100.0	98.4
Iron and steel, steel works, and rolling mills	486	417	475	411	97.9	98.6
Locomotives	16	15	13	13	81.2	86.7
Iron and steel, blast furnaces . . .	105	81	105	80	100.0	98.9
Cars, electric and steam railroad	147	143	144	141	98.0	98.6
Cement	174	160	156	158	89.7	98.6
Coke and by-products	154	112	150	109	97.4	97.4
Tires and inner tubes	91	53	83	49	91.2	92.5

^a Source: Bureau of the Census, United States Department of Commerce.

If we take a larger view of industry, we discover that there are many lines of manufacture in which the percentage of plants controlled by corporations is quite low. But despite this fact, the corporations engaged in any given line of industry usually carry on most of the activity in that industry. Only 25 per cent of the cigar and cigarette plants in this country are corporate-owned, but this one-quarter produces more than 95 per cent of all cigars and cigarettes made here. Thirty-two per cent of all our flour-milling establishments are corporations, and they manufacture 90 per cent of the total output of the flour mills in the United States.

Not all of the data for manufacturing emphasize so strongly the

predominance of the corporation in American industry, but the samples given are fairly typical. They help to explain the fact, already noted, that 92.6 per cent of the total output of manufacturing concerns in the country, as judged by value of product, is attributable to establishments operating under the corporate form of organization.

THE COOPERATIVE ASSOCIATION

Up to this point we have been examining business organization with particular reference to the question of ownership. We shall now give a little attention to the cooperative association and public ownership; and here, it will be noted, the emphasis is upon *purpose* rather than *ownership*. Individual proprietors, partnerships, and corporations operate chiefly for the purpose of making profits for the owners. Cooperative associations and public ownership aim to provide commodities or services at cost to all who are members of the cooperative or of the "public," as the case may be.

In some instances, it must be added, cooperative associations deal with the general public in addition to their own members. In their dealings with non-members, the cooperatives realize gains which, however, are not distributed among the members of the cooperatives but are used to instruct the public on the benefits of cooperation. The present importance of cooperatives is slight in comparison with that of individual proprietorships, partnerships, and corporations; but the cooperatives have made sufficient headway in Europe (and, to a lesser degree, in this country) to justify a few pages of description.

Theory of the Cooperative Society. The distinguishing feature of the cooperative organization is the democratic operation of an enterprise for the benefit of the members who transact business with it. To insure democratic control, the cooperative grants only one vote to each member, regardless of his capital investment in the association, and often the capital holdings of members are limited by specific provisions of the by-laws. Since the association is conducted for the benefit of those who have direct business relations with it, the service performed by the cooperative is rendered at cost, each member paying for the service he receives.

Form of the Cooperative. Some cooperative associations require so little operating capital that the membership fees of ten or twenty dollars meet their financial requirements. Others, again, purchase considerable equipment, and secure their funds by organizing as

corporations and selling stock. In the former case, the organization is somewhat similar to a large partnership with, in some instances, a limited liability granted by law. When a charter is secured and stock sold, the cooperative is not unlike the usual corporation, except that it is not operated primarily as a profit-making enterprise. Indeed, in most instances, the dividends paid on cooperative stock are limited to a very moderate return (only slightly, if any, greater than the current rate of interest), with the definite purpose of avoiding the payment of what might be considered profits.

Scope of Operations. Cooperative associations have been least successful when operating in the field of production (the term being used here in its narrow sense, as referring to the creation of form utility). A number of attempts have been made to carry on manufacture or agriculture under the cooperative form of organization, but almost always with disastrous results. The reasons for failure seem to be, in most instances, the inability of the members to find among their number persons able to perform efficiently the duties of management, and an unwillingness to bring in high-salaried executives from the outside.

The term "producers' cooperatives" is often heard, but in most cases it has been applied to societies that engage chiefly in the *marketing* of products. It is true that grain cooperatives may perform the service of storage as well as sale; dairying cooperatives may convert raw material into butter and cheese; and fruit growers' cooperatives sometimes operate canneries which make use of imperfect or undersized fruit. But these functions, as a rule, are incidental to the larger function of finding markets for the goods and disposing of them at satisfactory prices.

"Consumers' cooperatives" are societies that aim to purchase collectively the goods they need (groceries, hardware, clothing, and so on), so that they may secure the advantages of large-scale buying and avoid paying the "middleman's profit" which ordinarily goes to the retail merchant. In the field of finance, the building and loan association provides the most conspicuous example of cooperative action. By using the savings of members of an association, and adding to them by loans made available through the financial standing of the organization, it is possible to supply funds for the ownership of homes by persons of moderate means, who would otherwise probably be obliged to live throughout their lives in rented quarters.

Extent of the Cooperative Movement. The cooperative movement has spread much more widely in European countries than in the United States. And yet, even in this country, the data relating to the movement make a brave showing. In 1944, there were in the United States 4285 cooperative distributing associations, 577 service cooperatives (providing housing, medical care, or burial service), 850 electricity associations, 5000 telephone associations, 9000 credit unions (or financing organizations), and 2000 insurance associations.⁶

The cooperative movement had its beginning in England in 1844, as a consumers' cooperative which had for its purpose the retail sale of merchandise. It has since spread into the wholesale field, and into manufacturing as well. "Consumers' cooperation can no longer be called an experiment," wrote an eminent English economist fifteen years ago. "In Great Britain at least it is a very well-tried and firmly established form of industrial organization. The goods sold by the retail societies reach one-third of the families in the country, and their value amounts to perhaps one-twentieth of the whole national income, about one-half of them being supplied by the wholesale societies, and about one-third being actually manufactured in the movement's own productive department."⁷ Consumers' cooperatives have found much less favor in the United States, but even here it is estimated that retail stores owned cooperatively are doing many millions of dollars' worth of business annually. The building and loan associations, which stand out as an important agency for providing cooperative credit, now number at least 10,000 organizations and have (it is estimated) between 7,000,000 and 8,000,000 members. These associations play an important part in financing homes for those who can buy homes, if at all, only on the basis of small monthly payments stretching out over ten years or more.

Cooperative associations for marketing, purchasing, and financing, such as we described briefly, appear to have much to offer in the way of effecting economies and thus increasing the real incomes of their members. Their ability to compete with other agencies performing similar functions is an indication of effective and efficient operation. It is probable that we shall witness, in the future, a further development of the movement in this country.

⁶ *The Competition of Cooperatives with Other Forms of Business Enterprise*, House Report No. 1888, Washington, Government Printing Office, 1946, p. 26.

⁷ D. H. Robertson, *The Control of Industry*, New York, Harcourt, Brace & Company, Inc., 1932, p. 108.

PUBLIC OWNERSHIP

Public ownership has, in common with cooperation, the idea of conducting business for those directly concerned, rather than for a group of capitalists. "Those directly concerned" are usually, in the case of public ownership, most or at least a large part of the citizenry of the political unit in question. Public ownership is sometimes resorted to in order to insure that a certain necessary service, such as the carrying of mail, will be rendered properly; or, again, it is undertaken so that the public may be able to purchase a service at cost—that is, without profit to the enterprisers. In some few cases, public ownership is undertaken with the thought of securing revenue for the government, but instances of this kind are rare.

The term "governmental ownership" usually brings to mind the idea of a business enterprise operating on a national scale. The postal service is so vital to the welfare of a people that it is usually owned and operated by the national government. About 80 per cent of the railroads of the world are state-owned. Other phases of communication that have been taken over by some national governments are telegraph and telephone systems. Of these types of industry, only the postal service has been nationalized in the United States, though during World War I the railroads of the country were placed for a time under government control.

Experience in the United States. But on a smaller scale, public operation has found considerable expression in the United States. A fair number, though of course a pronounced minority, of municipalities have found it desirable to own and operate waterworks, gas and electric plants, street railways, bus lines, and other forms of so-called public utilities. Many of our "public utilities" are owned by private corporations, with their activities regulated to some extent by public-service commissions. A fairly recent development in the field is the inauguration of publicly owned "yardstick" power plants, whose costs of production, it is argued, will provide the basis on which to calculate a "fair price" to be charged by the privately owned power plants. An important experiment in public ownership was made possible by the passage of the Tennessee Valley Authority Act of 1933, the stated purpose of which was "to provide the generation and sale of power, to build dams, power plants, and transmission lines, to develop fertilizers, and, under the immediate direction of the President, to carry out a program of social and economic planning

with the aim of promoting the social and economic welfare of the Tennessee Valley and of the Nation." The results of these and similar undertakings may well be far-reaching, and their success or failure will doubtless do much to advance or retard the march of public ownership in this country. Our public-school system, with its 28,000,000 students, almost a million teachers, and an enormous capital investment, is of course one of our most striking examples of public ownership and operation.

It will be noted that publicly operated industries are frequently producers of services, and not of material goods to be consumed directly by the user. There are exceptions, of course. At times the industries are supported wholly through taxation, as in the case of our public schools, and the service is rendered free to all who wish to avail themselves of it. Again, prices are charged which will cover all or most of the cost of operation. In our postal service, for example, a profit is realized on the handling of sealed letters, but some kinds of mail matter (notably books, newspapers, and magazines) are carried at a loss. Any net deficit resulting from the operation of the United States Post Office is taken care of by appropriation, and ultimately comes out of funds secured through taxation.

Public Ownership Throughout the World. Though individualism is decidedly more popular than collectivism in the United States, there has in recent years been a pronounced trend toward government ownership and control of economic activities in many parts of the world. The overthrow of the Conservatives by the British Labor Party in 1945 marked the beginning of a program of socialization of vital industries which is expected eventually to include about one-fifth of the economic life of England. "Its aim is not communism, or even 100 per cent socialism, but a sort of socialism in which basic industries are nationally owned, but in which free enterprise operates in most of the economic fabric of the nation and in which the ideals of political freedom are wedded to social security and well-being."⁸ Thus far the British have nationalized banking, coal-mining, civil aviation, cable and radio service, and railroads, canals, and inland waterways; and the electrical, gas, and steel-manufacturing industries are soon to be transferred to public ownership. In reporting a survey of nineteen nations conducted by its correspondents, *The New York Times* reported in 1947: "Canada

⁸ Raymond Daniell, in *The New York Times*, Sec. 6, February 2, 1947.

appears to be the only one in which private enterprise can be said to be functioning today with anything like the freedom from government controls that obtains in the United States.”⁹

Whether the development of public ownership and operation is desirable is a debatable question, and one that is being widely discussed today. Its advocates have shown that it offers certain definite advantages (particularly as an alternative to widespread private monopolies), but, on the other hand, its opponents have demonstrated that it holds possibilities of grave abuse. The friends of public ownership point with pride to economic developments in Soviet Russia and England, while the champions of economic individualism view these same developments with apprehension, and dwell upon the glories of capitalist Russia under the czars and of England in the pre-socialist days of Baldwin, Chamberlain, and Churchill. The truth of the matter is that we do not yet have sufficient scientific data upon which to base a sound appraisal of the relative merits of private and public ownership in a given industry, much less a considerable number of industries. If Britain should demonstrate that industrial nationalization can be extended without a loss in political or economic freedom for Englishmen as individuals, and with a gain in national and individual economic productivity, security, and stability, the example would doubtless influence the people of other nations. If, as her critics predict will be the case, Britain's experiment in nationalization should prove unworkable, its failure may be expected to lead to greater economic conservatism in some countries and more extreme economic radicalism in others.

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1. “The enterpriser, more than any other factor of production, is in a position to make or break the business.” Explain precisely why this is true.
 2. What is the “individual proprietorship,” and where in the business world is it usually found?
 3. What are the advantages of the one-man business?
 4. In what ways is the individual proprietorship handicapped?
 5. In what respects is a partnership superior to a one-man enterprise?
 6. What is a “limited” partnership, and what are its advantages?
 7. Define “corporation.”
 8. How do you account for the increasing popularity of the corporate form of business organization?
 9. What is a stock dividend?
 10. Why are stock dividends issued?
 11. Discuss the possibility of predatory control of corporations.

⁹ *The New York Times*, March 3, 1947.

12. How may the loss of employer-employee contacts result in un-economic and unsocial conditions?
13. Show statistically the importance of the corporation in American industrial life.
14. Why are large-scale industries usually corporate-owned?
15. Pick out from Table 6 several items that appear to you to be especially significant. Give your reason for your choice.
16. "The corporations engaged in any given line of industry usually carry on most of the activity in that industry." Substantiate, with figures.
17. Contrast the *corporation* and the *cooperative* on the basis of desire for profits.
18. How does the organization of the cooperative assure democratic control?
19. How is the cooperative financed?
20. When cooperatives have failed, what appears usually to have been the cause of failure?
21. How do "producers' cooperatives" differ from "consumers' cooperatives"?
22. Give some concrete idea of the importance of the cooperative association in this country in agriculture, retailing, and finance.
23. What similarity is apparent in the cooperative association and public ownership?
24. What important industries have been nationalized in certain countries?
25. What is the attitude of the British Labor Party toward government ownership?

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8. *The Size of Business Units*

Business organizations vary greatly in size as well as in form. Scattered throughout the country are thousands of very small business units, conducted in most cases by individual proprietors or by partners. Corporations also are sometimes small, but since, as was observed in the last chapter, one advantage of corporate organization is the ability to get together large quantities of capital, it is not surprising that our corporations include many very large concerns.

Growth of Large-Scale Business. Moreover, the tendency is clearly in the direction of large-scale business as opposed to business conducted in small units. According to authoritative figures, 2.2 per cent of all manufacturing establishments in the United States in 1914 had an annual output valued at \$1,000,000 or more per establishment; and these relatively few establishments employed 35.3 per cent of all wage earners in manufacturing plants, and produced 48.7 per cent of the value of all manufactured goods. But by 1937 manufacturing establishments with an annual output of \$1,000,000 or more constituted 6 per cent of the total number, employed 58 per cent of all wage earners engaged in manufacturing, and produced 70 per cent of the value of all manufactures in the country. When due allowance has been made for changes in price levels (which are explained in a later chapter), these figures show the growing importance of the large business unit in our present-day industrial world.

Measurement of Business Units. Difficulties sometimes arise in connection with the measurement of business units. How shall we know whether to classify a business concern as large or small? Is it large (1) when it employs a large number of workers, (2) when it has a high capitalization, or (3) when great value is added to raw materials in the process of manufacture? The answer often depends upon the nature of the industry under consideration, and the purpose of the inquiry. Some types of industry require many wage earners if they are to operate on a large scale; others, again, depend more

extensively upon the use of machinery, and their greatness may be measured by their capitalization; and so on. The fact is that all of the measurements listed above have advantages and disadvantages, but the first and third are probably the most generally useful. Our census authorities employ all three.

A large-scale business, then, is one which measures up to one or more of the standards we have noted. In a practical way, there is little difficulty in determining whether a business is large-scale or not. There can be no question that Hart, Schaffner and Marx engage in large-scale manufacturing; Sears, Roebuck and Company in large-scale merchandising; the New York Central Railroad in large-scale transportation; and J. P. Morgan and Company in large-scale finance. Examples of small-scale enterprisers in similar lines are the custom tailor in manufacturing, the corner grocer in merchandising, the independent taxicab driver in transportation, and the pawnbroker in finance. These are extreme cases chosen admittedly for the purpose of contrast, for economic principles are often seen most clearly when extreme cases are cited.

Each of the great business concerns just named is large-scale on several counts. Indeed, if an establishment has large capital or employs a large force of workers, it almost inevitably adds greatly to the value of raw materials in the course of manufacture. Otherwise, it could scarcely afford to have a large payroll or employ a great quantity of capital. Large-scale operation, it may be added, is often thought of as relating primarily to manufacturing, probably because it has had its greatest development in that field. But, as we have seen, there are some striking examples of large-scale business in other lines of economic activity.

ADVANTAGES OF LARGE-SCALE PRODUCTION

The steady increase in the size of business establishments in the United States is based, in large part, upon certain advantages that are enjoyed by concerns operating large-scale business enterprises. Of course, great size is not a guaranty of efficient operation, but large-scale businesses can often effect economies which are not attainable by enterprises conducted on a small scale. We shall note some of the advantages that accrue to large-scale producing units and lead to lower costs of production.

Lower Costs of Plant, Machinery, Materials, and Power. A suit of clothes for a 250-pound man may cost more than one for a

man weighing only half as much, but it will not ordinarily cost twice as much. For, while the larger suit requires much more material than the other, the quantity of labor and type of skill demanded in its manufacture are little if any greater than are needed in making the smaller suit.

Similarly, in the construction and equipment of an industrial plant, there are many items of cost that do not increase in proportion to increases in the size of the building or equipment. "A factory building which contains four acres of floor space can be constructed of less materials and with less labor than four similar buildings which each contains one acre of floor space—even after providing for equally good ventilation and natural lighting. Nor will its heating and artificial lighting be four times as expensive. . . . A 1000 horse-power motor is not ten times as costly to build or to buy as one of 100 horsepower. Neither is its expense of installation, wiring, repairing, or upkeep ten times as great. Nor does it have ten times as much dead weight or friction to overcome."¹ It would be easy to multiply examples showing that a large concern enjoys an advantage over a smaller one in the matter of the construction of buildings and the provision of some types of expensive machinery.

Again, large-scale production permits a concern to buy its raw materials and machinery in great quantities, and consequently at lower prices than would be quoted for small purchases. If a plant regularly takes a large part or the whole output of a producer of raw materials, the seller can afford to make substantial reductions in price. Carload lots of cotton may be purchased at a lower price per pound than single bales; and a textile mill that is large enough to use great quantities of this raw material can buy at a lower figure than will be asked of small cotton-cloth manufacturers. Furthermore, sellers often give large purchasers a more careful consideration of orders and a longer extension of credit than are accorded their smaller customers.

The large business unit has an advantage also in the purchase of power. If coal is used as a source of power, the ability to buy in huge quantities keeps down the price; and if electrical current or gas is utilized, the rate decreases with an increase in the quantity used.

Savings in Transportation. A similar argument applies to the cost of transportation which must be met by a business organization.

¹ Horace Taylor, *Making Goods and Making Money*, New York, The Macmillan Company, 1928, pp. 83-85.

Freight rates on carload lots of goods are naturally lower than on small shipments, since, per ton of goods shipped, it costs a railway company materially less to haul in carload lots than to handle small consignments. This is an advantage that may be enjoyed by large-scale concerns in both the purchase of raw materials and the shipment of the finished product, for the large-scale producer is as likely to sell his product in large quantities as to buy his raw materials in bulk.

Gains Through Specialization. In Chapter 6 we examined the many and great advantages that result from specialization of labor, and shall pause here simply to observe that large-scale production makes possible a high degree of specialization. A plant with a thousand employees is likely to utilize much more specialization than is a factory with only a hundred workers. We have already noted that the fact that specialization is limited by the size of the market—that it does not pay to specialize unless large quantities of goods can be sold. Since specialization is limited by the amount of goods produced, a large-scale producer is obviously in a position to utilize the principle of specialization to a greater degree than the owner of a small plant.

Extensive Use of Latest Machinery. Large-scale production makes it advisable to use highly specialized machinery, to use it intensively, and often to use it in extremely large quantities. Since the indirect method of production is economical, as we saw in an earlier chapter, it follows that the more machinery used (if wisely used), the greater will be the economies of production. The cost of a steam shovel would be prohibitive to a small builder, but to a large contracting company the shovel is not only essential, but exceedingly economical, for purposes of excavation. In like manner, large corporations (or large enterprisers of any type, for that matter) are able to take advantage of the latest mechanical developments. Indeed, enterprisers who turn out many units of goods cannot afford to overlook a machine the use of which will let them save even a fraction of a cent of cost per unit of product.

Employment of Practical Experts. Large-scale production makes possible the use of the highest types of managerial and technical skill. An executive at \$100,000 a year is out of the question for a small business, but an expert of this kind may be employed quite profitably by a great corporation whose annual output runs into millions of dollars. It is natural, therefore, that the best managers

and technicians should be attracted to the great corporations of the country. And it is natural that these great business concerns should be willing to pay handsome salaries, because the use of high-grade employees adds but little to the cost of each unit of goods produced under large-scale conditions. An expert who could reduce, by five cents per car, the cost of automobile manufacture would clearly be worth \$50,000 a year to an automobile concern with an annual output of a million cars.

Utilization of By-Products. The large producing unit is enabled to make use of by-products that are almost necessarily waste to the small establishment. Probably no better example can be found of economy of this kind than the utilization of by-products in the meat-packing industry. Only about one-half of a steer's weight is converted into usable beef. Consequently, a large part of the animal is worthless to the small-town butcher. Since his business unit is so small, he cannot profitably turn the waste materials into salable by-products. But the great Chicago meat packers are able to use almost every part of a steer or other animal. Glue, fertilizer, soap, and buttons are a few of the hundred or more articles that can be made from the "waste materials" of meat packing if the plant is sufficiently large to engage in the profitable manufacture of by-products.

Another striking illustration of the utilization of by-products is found in the petroleum-refining industry. Gasoline is the chief product of petroleum today, having usurped the place that was held by kerosene before the advent of the automobile. Though a small refinery can extract gasoline from petroleum, it requires very elaborate equipment to make the most of the materials that remain after the major product has been secured. Only the large-scale refiner is able to utilize to the utmost this residue, which is made to yield up lubricating oils, paraffin or asphalt, and various other valuable commodities.

Experimentation and Research. Closely related to the subject just discussed is the establishment of departments of research in large-scale businesses. Research men are employed at large salaries by some manufacturing concerns, and these men are constantly experimenting in the attempt to discover new ways of using by-products, or better methods of manufacture, which will result in a higher grade of product or lower cost of production, or both.

The application of science to industry is just in its infancy, but

we have seen enough of its results to realize that manufacturers of steel, rubber, textiles, and many other articles cannot afford to be without an efficient corps of research men. But these men, as we have already intimated, must be of high caliber if their work is to be fruitful, and consequently they must be paid high salaries. It is only under conditions of large-scale production that business concerns are able to employ scientists of this type.

A sensational instance of economies brought about through experimental work carried on by experts is cited by Henry Ford. One of the problems of the Ford plant was that certain parts made of steel, "such as axles, did not cool evenly, and after treatment they had to be straightened, which added to the cost. We set a young man the task of bettering all our heat treat operations. He felt his way for a year or two and then began to get results. He not only cut down the number of men, but he devised a centrifugal hardening machine which cools the shafts evenly all around. Thus they do not bend, and the straightening operation is no more. . . . These changes may not seem important, but cutting out the item of straightening after the heat treat has saved us around thirty-six million dollars in four years!"² Mr. Ford's statement was made in 1926, so that the economies of this particular improvement have been realized over a very considerable period of time.

Gains in Marketing. Finally, there is a good deal to be said for large-scale marketing. If goods are manufactured in large quantities and at low cost, the selling price likewise can be low, and as a consequence it is easier to find buyers. It is possible also, in many instances, to find buyers who will purchase in large quantities. Among the economies of marketing, advertising should be mentioned. Printed matter can be produced much more cheaply in large quantities than in small. Advertisements in popular magazines running into thousands of dollars are a great aid in marketing, and are within the budget range of the large-scale manufacturer but beyond the reach of the small producer. The actual sale of goods, also, is more economical in large than in small quantities. If a salesman can dispose of a product in carload lots, his time is much more productive than if he sells goods manufactured in small quantities, of which each customer buys only a few dozens or a gross.

² Henry Ford, in collaboration with Samuel Crowther, *Today and Tomorrow*, New York, Doubleday, Doran & Company, Inc., 1926, pp. 66, 67.

LARGE-SCALE AND SMALL-SCALE INDUSTRIES

Example of a Large-Scale Industry. Certain industries lend themselves particularly well to large-scale production. One of these is the steel industry. There are many good reasons for conducting the manufacture of iron and steel on a large-scale basis. One of the most important is the tremendous outlay necessary to secure blast furnaces, steel furnaces, and other equipment. The minimum cost of a modern blast furnace, used for converting iron ore into pig iron, is several million dollars; furthermore, once it is fired, the furnace must be kept in continuous operation. Likewise, the cost of open-hearth furnaces for the manufacture of steel from pig iron is very great. These are initial costs which can be met only by concerns that have access to large funds.

In steel manufacture, great quantities of heavy materials have to be transported from place to place. This is done by mechanical power, and here again large units are more economical than small ones. A large electric crane, for example, can be handled by one man just as easily as a small crane. It is advantageous, also, for a steel manufacturer to make molten pig iron into steel without allowing it to cool; and, again, there is an economy in fashioning the steel into finished products before it becomes completely cold. Steel makers have found it desirable also to use the gases from blast furnaces in operating the other branches of their works.

Fields of Large-Scale Enterprise. It is little wonder, then, that steel mills are operated on the basis of large-scale production. Indeed, they could not be operated efficiently on any other basis. There are many other industries which for various reasons may properly be termed "essentially large-scale." Professor Willard L. Thorp, in a study to which we shall make frequent reference in the present chapter, has published a list of such industries:³

1. Industries which require a large capital investment, particularly in plant and equipment: Sugar refining, copper smelting, steel mills.
2. Industries which are monopolies, and which have a sufficiently large market to make operation on a large scale feasible. This includes artificial monopolies, such as those based on patent rights as well as the monopolies by nature: Public utilities, manufactured ice.
3. Industries in which a natural resource is required and in which that

³ Willard L. Thorp, *The Integration of Industrial Operation*, Washington, Government Printing Office, 1924, p. 88.

natural resource is limited in amount and localized in geographical distribution: The manufacture of lead and zinc products.

4. Industries in which the product is capable of standardization and particularly in which a test for quality is required: Sugar, salt, meat packing, etc.

5. Industries in which the product is highly complex and can be constructed, therefore, only by an intricate fabricating system or a large and diversified organization: Typewriters, adding machines, textile machinery, and automobiles.

6. Industries in which the product is large in size, requiring complex equipment for construction and large capital investments: Shipbuilding, locomotives, ordnance.

Opportunities for Small-Scale Business. There are some industries, however, which seem to be perfectly capable of withstanding the forward march of large-scale production, or, at least, have been able thus far to provide opportunities for those who wish to conduct business on a small scale. Agriculture is carried on, as a rule, in small units. In this field of production it is difficult to use specialists, since their opportunity for work would depend upon weather conditions and other uncontrollable factors. However, agriculture is an industry in which machinery is coming more and more into use, and there are indications that we may see more large-scale farming in the future than in the past or present.

Retail merchandising may well be conducted on a large scale, as is apparent in our great department stores and mail-order houses. Nevertheless, the development of these large mercantile establishments has not put out of business the small shopkeeper, and it seems likely that there will always be a place for specialty shops which combine the advantages of convenient location with prompt and expert service.⁴ Those lines of work in which there is a close relationship between the seller of a service and the customer are likely to remain, for the most part, in the field of small units. The work of the plumber, the printer, the electrician, and the paper hanger is illustrative of types of economic activity that do not lend themselves readily to large-scale operation.

⁴ In 1939, 54.2 per cent of our retail stores had an annual volume of sales of less than \$10,000 per store, but they did only 9.1 per cent of the total selling of all retail stores. More than 23 per cent of the total sales were transacted by establishments which had sales totaling \$300,000 or more each, and these establishments comprised only seven-tenths of one per cent of all retail stores in the United States (*The Economic Almanac, 1946-47*, New York, National Industrial Conference Board, 1946, p. 90).

We may again quote from Dr. Thorp's study, and enumerate some general types of industry that are essentially small-scale:⁵

1. Industries whose product cannot be standardized and establishments which attempt to make products to suit the differing tastes of consumers. Such industries produce "tailored" suits, high-grade furniture, art goods, finely bound books, etc.
2. Industries producing for a small market, such as those manufacturing artists' materials, nets and seines, models and patterns.
3. Industries in which the local market is small and whose product has a high transportation cost. In the manufacture of artificial-stone products, or bricks in many localities, the activity could never be conducted on a large scale because of the limitation of the market for its product and the expense of transportation.
4. Industries in which the material used is widely scattered and cannot be concentrated because of high transportation cost or rapid deterioration. Cheese factories and cider mills may be included in this class.
5. Industries in which skilled labor is the chief element, such as engraving, job printing, etc., whose products are really services rather than commodities.

The Optimum Size of Business Unit. We may now raise the question whether there is an *optimum*, or best, size for a business. It is fairly obvious that there is no such optimum for *industry as a whole*, for, as we have just seen, some types of business flourish under large-scale operation while others do better when conducted in small units. It is quite possible, however, that for any given kind of business there is an optimum size—a size at which the business can be operated more advantageously than if the business units were either smaller or larger.

Mr. E. A. G. Robinson, a British economist who has made a careful analysis of this problem, lists five forces that combine to determine the best size of the business unit.⁶ There may be an optimum size from the point of view of (1) technique, (2) management, (3) finance, (4) marketing, or (5) risk and fluctuation. "These five forces may, in certain cases, lead to an approximately similar optimum size," says Mr. Robinson. But he shows also that in some instances a consideration of these five forces may lead to the conclusion that the needs of each can be met fully only by the adoption of a size of organization that would be detrimental to the interests of the other four. The technical optimum size, for example, may

⁵ *The Integration of Industrial Operation*, p. 89.

⁶ E. A. G. Robinson, *The Structure of Competitive Society*, New York, Harcourt, Brace & Company, Inc., 1932, p. 16.

require a plant so large as to endanger the life of the business in time of business depression; or the technical optimum may be so large that the business, if conducted on such a scale, would be unwieldy from the point of view of good management. Again, considerations of economy in the fields of marketing or finance may dictate a size of plant that would be technically uneconomical or would involve shouldering an unduly large amount of risk.

There are possibilities, as Mr. Robinson shows, of reconciling some or all of the several optima, but reconciliation cannot always be brought about. What has to be done ordinarily is to make certain compromises, adopting as the best size a unit which will not, perhaps, conform strictly to any one of the five optima that we have named, but which, *all things considered*, will be the best size from the point of view of low costs. For the best size of producing unit, Mr. Robinson concludes, is the size of "that firm which in existing conditions of technique and organizing ability has the lowest average cost of production per unit, when all those costs which must be considered in the long run are included."⁷

EXPANSION OF THE BUSINESS UNIT

Large-scale production does not as a rule spring up overnight, but is more often a development over a period of years. Business men usually deliberate long and seriously before undertaking the financial and managerial obligations that are involved in increasing the size of the business unit. In some instances a business passes, by a sort of evolutionary process, through a series of steps or stages, until it finally becomes an industrial giant. Great businesses, like great oaks, have usually had small beginnings. The Victor Talking Machine Company grew from a tiny workshop into a huge factory, the Strawbridge and Clothier Company of Philadelphia from a small merchandising business into a great department store. Sometimes, however, a business expands through the combination of two or more established concerns which thereafter are operated under a single ownership.

Evolution of a Shoe-Producing Concern. We may illustrate the expansion of a business unit by citing the experience of a shoe-manufacturing enterprise in New England. It began in a modest way, with a small factory and few employees. Gradually, however, it built up a demand for its product; as the demand grew, additions

⁷ *Ibid.*, p. 14.

were made to the plant and equipment, more operatives were engaged, and eventually the plant was almost four times its original size.

By and by, this larger plant was not able to manufacture in sufficient quantity to meet the demand for its product. There was some thought of building a second factory in the same community, but the labor supply of the town was fully employed, and it seemed best to expand in another locality. Consequently, these enterprisers scoured the country roundabout in search of a suitable location for a new factory, and finally solved the problem of output, at least temporarily, by buying in a near-by town a second already established shoe factory, equal in size to the one they already owned.

It was now found that there was no difficulty in manufacturing in sufficient quantity to meet the demands of the trade. Indeed, the output was so great that the concern decided to establish a retail store in Boston, and thus sell directly to the consumer. Here again was expansion, but of another kind, for merchandising is a type of economic activity quite distinct in its nature from manufacturing, but carrying further the process of production.

Simple Horizontal Combination. When two or more business units operate under a central management, they comprise a form of organization that is called "combination"; and when the several units are engaged in producing like commodities or rendering like services the coalition is known as *simple horizontal combination*. This situation is a common one, for "the size of the *firm* is not limited by the size of the *plant*; and the typical large manufacturing unit of today is a firm which owns, not a single gigantic factory, but a number of factories of considerable but not enormous size, possibly situated close together but quite possibly scattered over the face of a whole country or indeed of the whole world."⁸ In some lines of industry, it may be wiser to operate two similar establishments of only moderate size than to construct a single huge plant. This is true in sugar refining, in the smelting of iron ore, and in certain other lines of manufacture. Because these several plants are on the same industrial level, manufacturing uniform products, this type of centralized control is called simple horizontal combination.

Industrial establishments are often placed in particular localities because of special advantages in the way of raw materials, labor

⁸ D. H. Robertson, *The Control of Industry*, New York, Harcourt, Brace & Company, Inc., 1923, pp. 21, 22.

supply, or markets. Advantages such as these may lead to the operation of a number of plants of rather small size, instead of one very large establishment. Cheese factories, in order to secure raw milk cheaply, may profitably be scattered throughout a dairying region; silk mills of a single concern may be located in different cities for

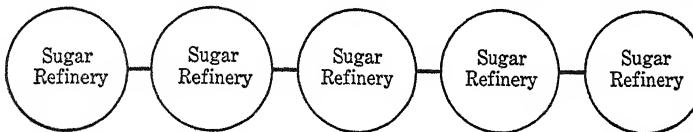


FIG. 4. SIMPLE HORIZONTAL COMBINATION.

The grouping, under one management, of two or more establishments making *like* products.

the purpose of discouraging concerted action by the workers; and brickyards are normally placed fairly near the prospective purchasers of the product. In each of the instances mentioned, however, unified control of a number of establishments may result in some of the economies of large-scale production. If so, combination is likely to take place.

Complex Horizontal Combination. The examples thus far given are of simple horizontal combination. But horizontal combination is sometimes complex. That is to say, instead of the several consolidated units manufacturing uniform products, they may engage in manufacture of different kinds. In some instances, there is an obvious relationship between the several products. When two or three articles, such as butter, cheese, and ice cream, are made from

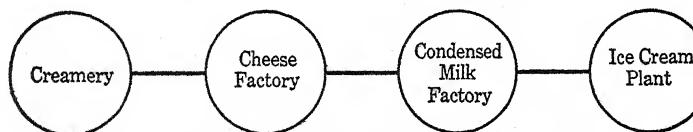


FIG. 5. COMPLEX HORIZONTAL COMBINATION.

The grouping, under one management, of two or more establishments making *unlike* products.

the same basic material, the situation may lead to *complex horizontal combination*. The combination is *complex* because the products turned out are not *like* but *unlike*.

A few more illustrations of complex horizontal combination may be given. "A large bakery operates a feed-mill, in this way utilizing

the stale and faulty products not sold.”⁹ A canning factory manufactures its own tin cans in a separate factory. Sometimes the connection between the articles produced seems rather remote. Professor Thorp tells of one concern that manufactures, in separate factories, billiard tables and phonographs; another, pianos and candy; and a third, mousetraps and silverware. Usually, however, a reasonable explanation of such combinations can be found if the history of the enterprises is investigated. Simple and complex horizontal combinations are shown graphically in Figs. 4 and 5.

Vertical Combination. *Vertical combination*, which is also known as *integration*, consists of the concentration, under one central office, of two or more manufacturing units operating on different stages, or levels, of production. The many industrial interests of the Fords provide an excellent illustration of the extent to which vertical combination may be carried on in present-day business. Following is a list of industries operated by the Ford interests, all of which are said to have contributed in some way to the manufacture of Ford automobiles:¹⁰

Acetone	Electric locomotives	Machinery manufac-
Aeroplanes	Electric power	ture
Artificial leather	Farming and stock	Motion pictures
Automobiles	raising	Paper
Automobile bodies	Fertilizer	Photography
Batteries	Filtered water	Printing
Benzol	Flax growing	Products of hydro-
Body parts	Flour	electric power
By-products	Fordite	Radio
Car trucks	Forgings	Railroads
Cement	Foundry	Sawmills
Coal mining	Generators	Small tools
Coke manufacturing	Glass manufacture	Steam turbines
Copper wire	Iron mining	Steel manufacture
Cotton, woolen, linen	Johanssen gages	Toolmaking
Dry kilns	Lead mining	Tractors
	Logging	Wood distillation

We shall not attempt to show in detail the part played by each of these forty-seven industries in the production of automobiles. But even a casual inspection of this list indicates the close connection of certain industries, and their probable contribution to

⁹ Willard L. Thorp, *The Integration of Industrial Operation*, p. 195.

¹⁰ L. P. Alford, *Laws of Management*, New York, Ronald Press Company, 1928, p. 60.

the chief Ford product. Iron mining provides one type of raw material, logging and sawmills a second, and flax growing a third. These several items make progress through steel works, body plants, and textile mills, respectively. Power is an essential factor in manufacturing; hence the production of electric power and steam turbines. Coal is required for generating steam and is also the raw material for coke, which, in turn, is necessary in the smelting of iron ore. Transportation is carried on almost continuously in the Ford organization, and this fact accounts for the inclusion, in the Ford list, of electric locomotives and railroads.

A close familiarity with the Ford operations would doubtless enable one to find the specific places in the organization into which most of these forty-seven industries fit, and to explain the relationship of each to the whole. But it is probable that some one or more of the forty-seven would not fulfill the requirements of vertical combination, namely, that they represent a stage, or level, either behind or in advance of some other stage, and aid definitely in furthering the production of the finished article. The manufacture of by-products, to name but a single instance, is very likely to be purely incidental, a type of activity carried on to avoid waste, but not contributing to the manufacture of automobiles. A by-product factory, then, would be an example of complex horizontal combination in a scheme of things which is essentially vertical combination. The many assembly plants functioning under the Ford banner are instances of simple horizontal combination, since all are performing similar operations. Vertical combination is illustrated in Fig. 6.

Instances of Complicated Combination. We see, then, that in a single enterprise there may be expansion in several directions. When a single establishment has reached the maximum size for economical operation, it may spread out horizontally through the accession of one or more plants engaged in the same kind, or a different kind, of production. If the new plants engage in the same type of organization, the organization is one of simple horizontal combination; if in different types, of complex horizontal combination. Finally, the enterprise may launch into *forward* or *backward* integration; the former, if the new establishment represents stages of production closer to the finished article, the latter if they are nearer the raw-material stage.

Some large-scale industries never reach the third, or even the second, step of development that we have outlined. Others, again,

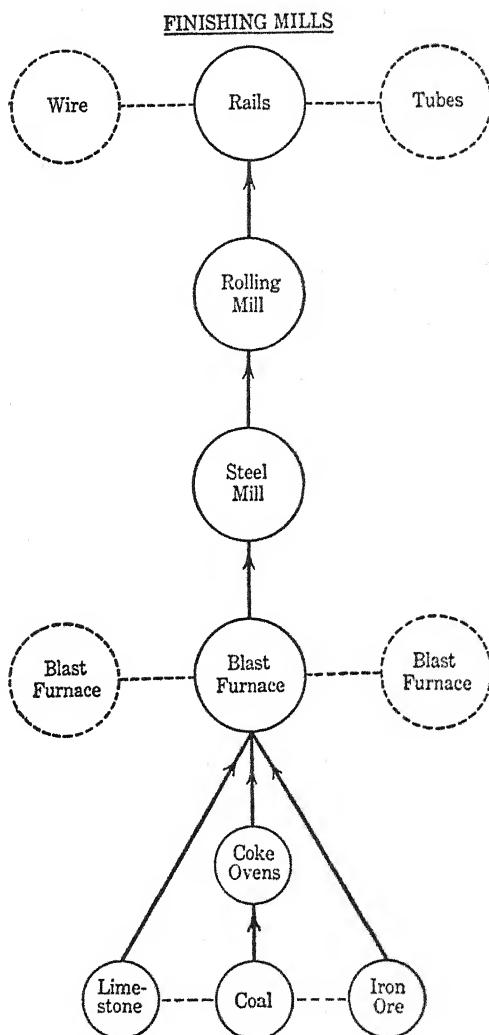


FIG. 6. VERTICAL COMBINATION, OR
INTEGRATION.

The grouping, under one management, of two or more establishments making *successive* products. (Vertical and horizontal combination may go together, as is indicated by the dotted lines in the diagram.)

such as the United States Steel Corporation and the Ford Company, have expanded horizontally and vertically until their many and diversified interests seem to the outsider to form a veritable maze of complications. As an evidence of the rapidity with which expansion sometimes takes place in this age of large-scale production, it may be mentioned that the Ford organization began operations in 1903 with a paid-in capital of \$28,000. Although additions to Ford capital have been made only from earned profits, it is estimated that the business is now worth more than a billion dollars.

INDUSTRIAL MONOPOLY

Large-scale production brings gains which, for the most part, are strictly legitimate, but combination sometimes results in conditions that are contrary to public policy. If, by increasing the size of a plant or combining a number of plants under one management, an enterpriser can reduce his costs of production, there should certainly be no objection on the part of the public. Indeed, it is entirely possible that the consumers will benefit through a reduction in the selling price of the commodity. But whether the price is reduced or not, there is little excuse for begrudging the enterpriser the gain that has come to him because of his superior ability in the field of production. Should he attempt, however, to make an artificially high profit by reason of a superior *bargaining* position, then indeed there may be reason for censure, and even for public interference.

A serious advantage of industrial combination from the point of view of public welfare is the possibility that an enterprise may grow to such vast proportions as to be dangerous. In other words, it may occupy so strong a position in its particular field as to undertake to dictate the terms on which consumers will be permitted to buy essential goods. Economic theory in general assumes the existence of competition among the several producers of a given commodity. It is supposed that manufacturer will compete with manufacturer, merchant with merchant, and so on; and that, in their eagerness to secure patronage, the competitors will offer their wares at lower and still lower figures, until finally a price based on costs of production is reached.

Some Hazards of Monopoly Control. But if control has passed into the hands of one or a very few enterprisers, they may put an end to competition, and consequently to any assurance of a price related to production costs. And now we arrive at the central idea

of monopoly, which is *that degree of unified control over supply or demand which will permit the regulation of price.* We shall see, in our study of price determination, that a small amount of goods sold at a high price per unit may bring a greater net return than a larger quantity at a low unit price. By restricting output, then, the monopolist may add to his profits, but at the expense of the consumers, who will suffer in two ways: first, by having fewer goods to consume; and, second, by having to pay a higher price per unit than would prevail if the output were not limited artificially by the monopoly.

It might, for example, be advantageous to the anthracite coal interests (pronounced a monopoly by the United States Coal Commission) to restrict their output and thus raise prices. But as a result, many who need coal would be compelled to go without, or to get along with an insufficient quantity, and persons of larger means would be required to pay an extremely high price. In like manner, a monopoly may work hardship through the control of demand. Tobacco growers have often charged that, because of concerted action on the part of the dominant tobacco manufacturers, the farmer has been obliged to sell his tobacco crop at a price dictated by the alleged monopoly—sometimes at less than the cost of production—since there was no other market for his product.

There is the further danger that a monopoly, in order to maintain its position of dictatorship, may seek by unfair methods to keep would-be competition out of the field, and thus obstruct the road to freedom of enterprise.

Legal Aspects of Monopoly. Indeed, much of the "trust-busting" that was carried on under the Presidency of Theodore Roosevelt was aimed at the elimination of unfair competition as practiced by the so-called trusts. The Standard Oil Company, the United States Steel Corporation, the American Tobacco Company, the National Cash Register Company, and the United Shoe Machinery Company (to mention but a few) have in the past engaged in practices which the courts have condemned as unfair. Several of these huge combinations were "dissolved" by the United States Supreme Court; that is, they were ordered to disband as trusts, and to conduct their business as separate organizations.

However, there exist, at the present time, many large and powerful "holding companies," which have much in common with the older trusts but are designed to prevent interference by the federal authorities. A holding company is a corporation which holds a majority of

the stock of the individual companies that wish to join together for united action. It is in effect, though not in form, a partnership of corporations. The Supreme Court has ruled that a holding company, regardless of its size, should not be dissolved unless it indulges in unlawful restraint of trade, involving a risk of injury to the public interest.

The Wastes of Competition. However, we must not give the impression that all monopolies are objectionable. It may be, as we so often hear, that "competition is the life of trade." But it is sometimes, instead, the death of trade, for if competition is too intense it results almost inevitably in ruinous price-cutting, which, if allowed to continue unhindered, leads to the bankruptcy courts. The public cannot afford, any more than the business man, to have business failures multiplied by "cutthroat competition," for, in the long run, it is the consuming public that pays the bill.

Moreover, competition often results in undue duplication of equipment and effort. A single waterworks, gas plant, or street railway can usually supply service at lower rates than could several units in each of these public utilities. Realizing this fact, we ordinarily grant a franchise (or monopoly right) to one concern, and demand that it render good service at a fair charge. To prevent abuse of the monopoly power thus set up, we often insist upon supervising the service and regulating the rates, through a public-service commission which presumably represents the interests of the public.

Certainly, one important factor in bringing about monopoly is the desire to eliminate forms of competition that would make operation unprofitable. Another, as we have seen, is the hope of securing some of the advantages of large-scale production through an expansion of the business. Large-scale production, however, does not necessarily lead to complete monopoly, as witness the competition that exists between the Ford and General Motors companies. Of course, recognition of the legitimate reasons for the development of monopoly need not blind us to the fact that, once control is attained, there is grave danger that the rights of the consumer will be forgotten in the desire for large profits. Hence the need for some sort of regulatory measures which will safeguard the interests of the public.

Limits to Monopoly Power. Early attempts to deal with monopolistic organizations in this country took the form of dissolution, but after some twenty-five years of ineffectual court action this method gave way to regulation by law, under the supervision of the

Federal Trade Commission. When complaints are made, the Commission holds hearings, ascertains the facts, and then issues orders to the offending concern demanding compliance with the law. Moreover, this Commission has the privilege of asking federal courts to enforce its decisions. While seeking to eliminate predatory underselling, the Federal Trade Commission makes no attempt to protect the inefficient competitors of great combinations.

But there are several forces, apart from federal regulation, that tend to limit the power of monopolies. One is the economic fact that if a seller tries to charge an extortionate price for his goods by limiting the quantity offered for sale, the public will sometimes refuse to buy. Few commodities are absolutely essential; in most instances fairly satisfactory substitutes are available, and many consumers will turn to these rather than pay an outrageous price. It may be better for the monopolist, therefore, to be somewhat modest in his charge, so that the sales will not be so few as to cut deep into total net returns.

Moreover, if phenomenally high profits are realized, the position of the monopolist is far from invulnerable, since powerful financiers are always casting about in search of investments that give promise of exceptional profits. It may be wiser, then, for the monopolist to curb his acquisitive instinct and make a reasonable charge for his product, rather than invite competition by demanding a price that is clearly far above costs of production.

In some few instances, to be sure, a monopoly is fairly secure from competition. If it holds its position of vantage by reason of a valuable patent, it may enjoy a large monopoly profit until the patent rights have expired. Even safer is the extensive ownership of an essential raw material, such as the control said to be exerted by the Aluminum Company of America over bauxite, the basic material in the manufacture of aluminum. Most monopolies, however, are not so fortunate or far-reaching in their holdings, and must exercise caution in exploiting their monopoly advantages.

It seems doubtful that these economic curbs alone would succeed in restraining monopolies from undesirable practices. The truth is that the earnings of large combinations are often due more largely to their bargaining power than to large-scale productive efficiency. It is the bargaining maneuvers of the trusts that are particularly in need of watching, and the Federal Trade Commission has demonstrated its ability to detect infractions of the law and damage to public welfare, and to propose appropriate remedies.

1. "It is not surprising that we find in the corporate form of organization a number of very large concerns." Why should very large concerns adopt the corporate form of organization?
2. What standards of measurement may be used in judging the size of business units?
3. Show, by means of definite figures, the tendency toward large-scale business units in the United States.
4. Give an example (not taken from the text) of large-scale operation in (a) manufacturing, (b) merchandising, (c) transportation, and (d) finance.
5. What relation, if any, is there between large-scale production and economical production?
6. Why can supplies of various kinds be bought more advantageously by a large concern than by a small one?
7. Explain why large-scale producers are able to effect savings in transportation costs.
8. Why is a large business unit enabled to employ specialization to a greater extent than a small concern?
9. How does the adoption of large-scale methods lead to the wider use of the roundabout process of production?
10. Why do the best managers and technicians usually enter the field of large-scale production instead of accepting positions in small business units?
11. Why is it possible for large-scale producers to use materials that are often wasted by small producers? Illustrate.
12. Discuss the relationship between large-scale production and research.
13. Large-scale producers can market their goods more economically than small-scale producers. Why?
14. Explain, in some detail, why steel manufacture lends itself readily to large-scale production.
15. Distinguish between "essentially large-scale" and "essentially small-scale" industries, with illustrations.
16. In view of the growth of large-scale business, is the small-scale enterprise doomed to early extinction?
17. What, according to E. A. G. Robinson, is the "best" size for a business organization to adopt?
18. What are (a) horizontal combination, (b) vertical combination, and (c) integration?
19. "Horizontal combination" may be *simple* or *complex*. Distinguish between the two, with an illustration of each.
20. Explain what is meant by (a) "forward" and (b) "backward" integration.
21. The text mentions "the possibility that an enterprise may grow to such vast proportions as to be dangerous." Dangerous in what respects?
22. What is a "monopoly"?
23. What is a "holding company"?

24. What is "cutthroat competition," and why is it wise, from the social point of view, to discourage it?
25. Does large-scale production lead inevitably to monopoly?
26. What is the part played by the Federal Trade Commission in connection with monopoly? Contrast the methods of this Commission with Theodore Roosevelt's attempted solution of the problem of monopoly.
27. There are said to be "economic restraints" upon monopoly abuse. What are they, and how do they work?

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9. The Problem of Business Risks

Uncertainty of one kind or another appears to be a universal phenomenon. We are continually being forced to make decisions. And when there is a choice to be made between two or more possible courses of action, there is always a chance that the wrong course may be chosen. No phase of human activity is wholly free from risk and uncertainty.

The Riskiness of Business. Uncertainty is ever present in the field of economic endeavor. There is always the possibility that either the demand for or the supply of economic goods will change in such manner as to affect, and sometimes seriously, the welfare of consumers or producers, or both. Every few years, for example, some thousands of Chinese die of starvation because of famine in one or more sections of their vast country. On the other hand, American farmers sometimes go bankrupt because their crops of cotton or wheat bring less than actual costs of production, owing to the excessive size of the harvest and a consequent glut on the market.

Agricultural production is, of course, largely at the mercy of nature. Too little rain, or too much, destroys millions of bushels of grain, and a stretch of unseasonably cold weather ruins peach and orange crops. Moreover, if nature is too bounteous the effect upon the producers is almost as disastrous as though she were niggardly, for exceptionally large harvests commonly mean losses instead of gains, because of the low prices that result. The hazards of agricultural producers, however, form but one of the many types of business risk. In manufacturing, merchandising, transportation, banking, and other branches of economic life, there are possibilities of loss. Indeed, it is doubtful whether one can find anywhere in the business world a form of productive activity in which there is not at least some element of uncertainty. In the present chapter we deal with business risks and methods of handling them.

THE TIME RELATIONSHIP OF PRODUCTION AND DEMAND

The Problem of Fixed Capital. Some of the uncertainties of economic life are attributable to the fact that production today is usually very "roundabout," and is often highly specialized. The roundabout process involves the use of large quantities of capital, both fixed and circulating; and some of the fixed capital purchased by the enterpriser today may be in use for a score or more years. With production spread over so long a period, the chances are great that there will be changes in productive methods, or in demand, before this capital is worn out.

It is just possible that the capital in question will be productive to the very last, and it may even be of such a type that its value will increase as the years go by. In this case, the owner will enjoy a margin of additional profit by reason of this increase. But it is equally possible that the kind of capital used will, long before it is worn out, be rendered obsolete and worthless through the invention of new processes, or changes in the desires of consumers; and in such event, a loss will be suffered. It is on this account that patents are sometimes bought up and then quietly shelved (instead of being utilized) until the enterpriser is able to put them into operation without what appears to him to be a premature scrapping of machinery that is still productive. In general, the longer the life of the capital, the greater is the probability of loss of this kind in place of gain.

Uncertainties Resulting from Specialization. Specialization also usually spreads production out over a considerable period of time. Not only does specialization divide work up among many persons, but it frequently calls to its aid producers in all parts of the world. If we attempted to trace the beginnings of a suit of clothes or a pair of shoes, we might easily find ourselves carried to a sheep ranch in Australia or a cattle range in Argentina. Producers of raw materials far and wide are going ahead with production in the hope, but with no certainty, that their goods will sell at a profitable figure. The same hope and uncertainty are shared by other specialists along the line of production, through whose efforts the raw stuff eventually becomes finished goods. It must be remembered that there is little or no correlation between these various specialists, and, in the absence of centralized control, it would be nothing short of a miracle if sellers desired always to sell at a given price precisely the amount that purchasers were willing to buy at that price.

What often happens is that when the product of all specialists of one type is brought together, the quantity of goods available at a given time is so small that producers are able to command a price materially above expenses of production; or, on the contrary, it is so large that they must accept for their goods less than full costs of production.

Production in Anticipation of Demand. Production, then, is carried on largely in advance of demand. Our reference to uncertainties resulting from the roundabout process gave some notion of the chances taken by business men who invest in fixed capital which they count on using for many years. But uncertainty attaches also to business projects that are completed in much shorter periods. Productive forces are set to work today on the manufacture of goods that will be ready for sale a few months or a year hence. But will the work be accomplished as quickly or economically as the enterpriser anticipates? On this point he cannot be certain. The cost of raw materials, labor, and power may rise unexpectedly, and, if the enterpriser is producing on contract, he may have to deliver at a loss. If, as is more likely, he is producing "for stock" and not on special order, a strike of his employees, or some other unforeseen event, may so interfere with production, and so increase expenses, as to bring appreciable losses.

If our enterpriser is a farmer, he has to face the hazards of unfavorable weather, insect pests, and so on. There is always, therefore, the possibility that production may not measure up to the enterpriser's expectations—expectations which were perhaps entirely warranted by the conditions existing at the time his estimates were made.

Changes in Market Conditions. But marketing a product is often a more hazardous undertaking than making it in the first place. What assurance has the business man that the finished goods will be desired sufficiently by the public to enable him to dispose of them on satisfactory terms? The fact that production precedes demand brings into the situation a large element of uncertainty. Obviously, a given manufacturer will want to produce as much goods as he can sell at a profitable figure, but the problem of determining the amount is a serious one. He has, first of all, to try to predict the quantity of goods that the public will buy at a price high enough to cover all costs of production. Then he must undertake a most difficult task—that of estimating the quantity of the article that will be thrown upon the market by other producers.

Added to these difficulties is the possibility that the tastes of potential buyers will have changed by the time the goods are ready for sale, or that their purchasing power will have declined, with a consequent reduction in the quantity that can be sold. Fashions change, and sometimes very quickly, as witness past developments in automobiles, radio receiving sets, popular literature, women's costumes, coiffures, and so on. Extensive changes in the demand for goods sometimes spell ruin to a business man. The shift from wool to silk and rayon for women's dresses, the reduction in the quantity of material used, a serious decline in the sale of men's shoes, and the like, are examples of modifications in demand that have taken place, sometimes slowly and again suddenly, but in every case with a profound effect upon the fortunes of business men. The effect upon some enterprisers, it will be noted, is detrimental, and upon others beneficial. But the presence of chance in the marketing end of business is beyond question, and the losses, when they come, may fall upon either manufacturer or merchant, or both.

Who Are the Risk-Bearers? The owners of all the factors of production share, although unequally, in the uncertainties of economic life, unless methods of shifting the hazards are developed. The owners of land are perhaps less liable than capitalists, laborers, and enterprisers, to suffer loss through economic uncertainties. For land possesses a substantiality that makes its physical destruction improbable, and it is so essential to all phases of human existence that the demand for acres and square feet is more likely to increase than diminish. However, a person who rents agricultural land to another is always under the necessity of seeing to it that his tenant does not exhaust the fertility of the soil; and the owner of urban land sometimes finds his holdings "blighted" (or reduced in value), owing to shifts of business or residential districts to new locations. On the whole, it appears that the uncertainties attaching to land values work to the advantage of the owners; that is to say, rises in land values are much more frequent, and more extensive, than declines. This is true because the growth of population causes a steadily increasing demand for land while, at the same time, it is practically impossible to add to the total stock.

The owners of capital, in the main, bear a larger share of uncertainty than owners of land. Capital (such as factory buildings, machines, and tools) may be ruined by fire, flood, or other destructive forces; or its value may disappear wholly, or in part, as better

forms of capital make their appearance. There is also the possibility of losing one's capital through fraud or lack of ability on the part of the enterpriser to whom it has been entrusted. The large toll of business failures listed in Table 7 is indicative of the fact that investors do take chances in lending their funds to business enterprisers. These uncertainties, as we shall see when we study the distribution of income, form a part of the gross interest charge.

TABLE 7. FIFTEEN-YEAR RECORD OF BUSINESS FAILURES
IN THE UNITED STATES, 1931-1945^a

Year	Number of Failures	Aggregate Liabilities
1931.....	28,285	\$736,309,000
1932.....	31,822	928,313,000
1933.....	20,307	502,831,000
1934.....	11,724	230,198,000
1935.....	11,510	183,013,000
1936.....	9,185	147,253,000
1937.....	9,492	183,252,000
1938.....	12,840	226,504,000
1939.....	11,412	168,204,000
1940.....	13,619	166,684,000
1941.....	11,848	138,102,000
1942.....	9,405	100,763,000
1943.....	3,221	45,339,000
1944.....	1,222	31,660,000
1945.....	810	30,395,000

* Source: *Survey of Current Business*, 1932 to 1946.

Investors weigh, perhaps very inaccurately, the amount of risk involved in buying a certain bond or share of stock. The more hazardous the investment, the higher must be the interest rate on bonds or the dividends from shares of stock, if owners of funds are to be induced to put them into industry.

In the case of land purchase or capital investment, the uncertainty involved is assumed by the individual himself. He decides to take a chance; and the longer the chance, the greater must be the prospect of return if his venture turns out well. We may dismiss, thus briefly, these two types of economic uncertainty, and consider at greater length the more complicated hazards of the enterpriser, together with certain methods of handling the risks of production.

RISKS OF BUSINESS ENTERPRISERS

The enterpriser, it will be recalled, is the person, or group of persons, that owns a business and consequently assumes the responsibility for its operation. It is to the enterpriser that the land-owner looks for rent, the worker for his wages, and the capitalist for interest on whatever funds he has entrusted to the business man. The ability of the enterpriser to meet all of these claims depends not only upon managerial ability in the conduct of his business, but also upon the proper handling of business risks, to the end that these risks shall be rendered as slightly burdensome as possible. Indeed, if an enterpriser can go his competitors one better in the wise treatment of industrial hazards, he may find here a source of considerable saving, and hence of profit. We note, now, some of the specific risks of the enterpriser.

Land Title Risk. Let us assume that the enterpriser has purchased a business site for the erection of his factory. The land now appears to be his, but there is the possibility that, sooner or later, someone may turn up and challenge his claim to ownership of the property. To avoid the worry, inconvenience, and expense that would be entailed if a claimant of this kind should appear, the enterpriser may go to a title company, have a "search" made, and then, by making a small payment, secure a clear title to the land. He now has a guaranty of his ownership of the site and the assurance that any claim that may be brought against it will be fought by the title company. Moreover, should such claim be settled adversely to the enterpriser, he must be reimbursed by the company for any loss he may suffer.

Property Risk. Once the plant is built and fully equipped, the owner may wish to avoid the loss that would be his if the property were destroyed by fire, earthquake, tornado, or other calamity. This he may do by shifting the risk to insurance companies whose business it is to specialize in risk-bearing. Having paid the necessary "premiums" (the relatively small charges that are made for the service), he rests assured that should disaster of the specific kinds insured against befall him, his losses will be met by the companies that have insured him. It is possible, likewise, to insure raw materials, finished goods, and other forms of property against damage of various kinds.

Risks of Dishonesty. Insurance against theft, robbery, and burglary may also be purchased. One type of insurance, known as "suretyship," protects the business man against dishonesty on the part of his own employees. The process consists of "bonding" the employees up to a stated amount; thus the surety company becomes responsible for the peculations of the individual who has been bonded. It is the custom of many concerns to take out insurance of this kind on employees who hold positions of trust and responsibility.

Risks in the Purchase of Materials. All progressive business concerns now buy their materials on the basis of definite specifications, which set forth the standards to which these materials must conform. Going one step further, they often test the materials in their laboratories when they have been delivered. In this way they avoid the possibility of inferior goods being foisted upon them.

Later in the chapter, under the heading "Constructive Speculation," we shall describe "deferred delivery contracts" and "hedging," which are employed by some business men as protection against price fluctuations that might result in losses.

Uncertainties in Production. Using the term "production" in the restricted sense of the creation of form utility, we may repeat the statement, made in an earlier paragraph, that there is a large element of uncertainty in this field of business activity. The task of estimating in advance the cost of producing a given quantity of goods is a difficult one. A printing house, for example, is asked to bid on a certain job of printing. In order to secure the contract in competition with others, a close estimate must be made. But when the job is completed, it may be discovered that the price quoted was too low because of (let us say) a lack of effectiveness on the part of labor, or a sudden advance in the price of paper or ink, or the temporary failure of an electric company to supply power, with a consequent enforced idleness of the pressmen.

Production of goods for stock also is subject to uncertainties. Some of the hazards of the productive process are being eliminated by the substitution of scientific management for the old rule-of-thumb methods. Work is being more carefully planned now than in the past; the productive powers of employees are better known; materials are purchased and stored in such manner as to lessen the probabilities of waste; and the whole process of production is under more complete control. As a single example of the gain in

certainty to be realized through scientific management, we may mention the use of time studies in predicting the effectiveness of labor. If adequate time studies have been made, it is possible to estimate with a high degree of accuracy just how much time will be required for the completion of a job, and the labor cost involved. In the absence of such studies, estimates of labor cost are naturally faulty. Through the development of exact knowledge to replace mere guesswork, at least some of the uncertainties of production can be removed.

Uncertainties in Marketing. Accurate knowledge may also be prescribed as the most effective remedy for uncertainties in marketing. It is no small undertaking to analyze a market and determine the sales possibilities of a given commodity. But unless a scientific analysis of the situation is made, it is next to impossible for an enterpriser to estimate satisfactorily how much goods he may reasonably expect to dispose of. In making an analysis of this kind, it is necessary to determine the class or classes of consumers that may be expected to purchase the commodity or service in question, the number of consumers in each class, and hence the number of potential buyers under normal conditions. Factors that play a part in the making of a market are the purchasing power, living conditions, occupations, racial characteristics, climatic conditions, and numerous other influences affecting the different classes of consumers.

But knowledge of abnormal conditions also is important in avoiding marketing hazards; and the desire of business men for advance information on business fluctuations has given rise to the development of business forecasting, as practiced by such organizations as the Harvard Economic Service and the Babson Statistical Service. On the theory that history repeats itself, these "services" have been established to make careful studies of the volume of production (particularly in iron and steel), price movements, banking activities (including interest rates), stock market conditions, business failures, and other data that are thought to indicate business trends. On the basis of these studies business forecasts are prepared and sold to those who are sufficiently interested to pay the price. It is thought by some economists that information of this kind may eventually be quite effective in lessening uncertainties in both manufacture and marketing.

Business Risks and Profits. We have sketched a sufficient number of business uncertainties to show clearly that they are many and great. There is a tendency, on the part of progressive business men, to eliminate or lessen their hazards through the adoption of more scientific business methods, as in the handling of men and materials, and the development of better marketing practices based on statistical data. Of the risks that cannot be done away with or reduced appreciably, some are shifted to insurance companies; others, again, must be borne by the enterpriser himself. For, as Professor Marshall points out, "no insurance can be effected against the great majority of business risks. For the greater part of business risks are so inseparably connected with the general management of the business that an insurance company which undertook them would really make itself responsible for the business; and in consequence every firm has to act as its own insurance office with regard to them."¹

Many of the uncertainties that cannot be insured against arise because goods are produced in advance of demand. The unpredictable changes that take place may result in a surplus remaining after all necessary expenses of production have been met. This surplus is known as "profit," and will be dealt with in a later chapter. But it is equally possible that there may be a deficit after all costs of production have been paid. It is held by some that there is a tendency for profits to equal losses and cancel out over a long period of years. It is certainly true that unless the profits of a given concern are, in the long run, at least as great as its losses, the concern must go down in defeat.

RISKS OF INDUSTRIAL WORKERS

It is peculiarly the function of the enterpriser to assume certain types of business risk. But a recognition of the enterpriser's responsibility in this connection need not obscure the fact that industrial workers also have a large stake in the businesses to which they give their time and efforts. We shall indicate certain risks that fall to the lot of workers in modern industry, together with some methods that have been devised for meeting these risks.

Risk of Temporary Unemployment. The possibility of losing his job is a business risk of the industrial employee that causes

¹ Alfred Marshall, *Principles of Economics*, London, Macmillan & Co., Ltd., 1930, 8th ed., p. 398.

him much worry. Estimates of unemployment in the United States vary greatly, but it is probable that the *average* number of persons unemployed in this country is somewhere around two million. In times of prosperity this number may be halved, but in periods of depression it is believed that as many as thirteen million persons, willing and anxious to work, have been out of employment at a given time in this country alone.

Unemployment may be due to seasonal fluctuations in a given trade, as in the bituminous coal industry, which normally provides its laborers with only about 215 days of work annually; or it may be the result of general business depression which forms a part of the so-called business cycle. Thus, in the depression of 1921, between five million and six million persons were involuntarily deprived of their jobs because business in general was languishing; and in the post-1929 depression the number of unemployed was estimated at as high a figure as thirteen millions.

Whatever may be the causes of temporary unemployment, the hazard is a very real one. And, in the United States at least, it is a business risk that has been borne largely by the workers themselves. Something, but not much, has been done to lessen seasonal unemployment by combining two businesses that have their "rush seasons" at different times of the year. In some branches of the clothing industry, and in other unionized trades, there are guaranties of a minimum amount of employment annually. Plans of individual concerns, aimed at relieving unemployment, have been adopted by George A. Hormel and Company, meat packers, the Nunn-Bush Shoe Company, the Procter and Gamble Company, and a relatively small number of other concerns.²

Unemployment is one of the risks of business that can be insured against, and it is urged by some that insurance of this kind might properly form a part of the expenses of production, as do the costs of fire insurance at the present time. Though England and several other foreign countries have long had compulsory unemployment insurance (financed by employers, employees, and the government), the passage of the Social Security Act in 1935 marked the first attempt of the people of the United States to provide unemployment insur-

² An excellent summary of efforts to stabilize employment is given in "Reducing Fluctuations in Employment," No. 27 of Studies in Personnel Policy, *Supplement to The Conference Board Management Record*, New York, National Industrial Conference Board, November, 1940.

ance on a nation-wide basis. A *federal* payroll tax has been imposed upon employers, amounting to 3 per cent a year. Under certain specified conditions, nine-tenths of the revenue derived from this tax goes into *state* unemployment funds, to which further contributions are made by employers (and sometimes by employees as well). It is from these state funds that unemployment benefits are paid. The amount of benefits varies as between states, but in general an unemployed worker, after a waiting period of four weeks, may expect to receive about 50 per cent of his previous weekly wage (with a minimum and maximum which vary considerably as between the individual states), and for a period of sixteen weeks if he remains out of work for so long a time. The benefits paid were increased substantially during World War II (whether temporarily or permanently is not yet clear); and in the year 1946 about $4\frac{1}{2}$ million workers drew unemployment benefits. The average *amount of benefit* was \$18.50 a week, the *average period of benefit payments* was 13.4 weeks, and a total of \$1,095,476,000 was paid in benefits during the year. This unemployment plan has certain shortcomings, which we cannot undertake to describe at length, though we may mention the fact that it probably does not cover more than one-half of our working population, because certain occupations are excluded. However, it is definitely better than no unemployment insurance at all, and is gradually being improved.

The Hazard of Permanent Unemployment. Much more serious than temporary unemployment is the permanent loss of one's job. The danger of such loss is always present in an age of rapid technological advance. The worker who has spent years acquiring specialized skill may see this skill rendered wholly or partly valueless by the invention of a machine that performs the task much more quickly than the old hand method. Displacement of hand workers by the machine process has caused suffering ever since the very beginnings of the Industrial Revolution, when power spinning machines took the place of spinning wheels and power looms were used instead of the old hand looms.

A more recent example is the economic hardship borne by glass-workers in New Jersey, owing to the development of the Owens automatic machine for the manufacture of glass bottles. Because of the invention of new machinery in the bottle industry, the wages for workers in this trade were twice reduced within the space of four years. Wages had been stationary from 1890 to 1909. In the

latter year there was a reduction of about 20 per cent, and this was followed by a similar reduction in 1912, making the wages in that year 36 per cent lower than the 1890-1909 wages. Since that time there have been several increases, but these were not sufficient to more than offset the rising cost of living, so that we may safely say that the real wages of certain workers in the glass-bottle industry are fully one-third lower than they once were, and that this decline came as a result not of decreased efficiency, or lessened skill, or any other circumstance within the control of the worker, but simply because of the invention of a labor-saving machine.

To bring our illustrations more strictly up to date, we may mention the serious situation which for some years has threatened the earning capacity of those professional musicians who make a living as members of theater orchestras. So great have been the technical improvements in the field of the "talking pictures," that many managers of legitimate and motion-picture theaters have dispensed with orchestras and are giving their audiences "canned music" provided by reproducing devices. The concern of the musicians is apparent. In an effort to retain their jobs, the 140,000 organized musicians of the United States (through their union, the American Federation of Musicians) have spent many thousands of dollars for paid advertisements in leading newspapers and magazines, begging the public to insist upon "living" music and to accept no substitutes.

Economic changes, such as those cited, do not necessarily result in strictly permanent unemployment; they may bring about a fairly long season of idleness, followed by the acceptance of other kinds of work which are less remunerative than the old occupations, but better than none at all. There is now present, however, a new business hazard that may well strike terror to the heart of the industrial worker. This is the tendency for employers to show a definite preference for young workers, and, indeed, in some cases to refuse to engage men who are more than forty years of age. If this practice should become widespread, it would add tremendously to the risks of unemployment.

Risks of Hazardous Occupations. Though the possibility of enforced idleness constitutes the greatest risk that workers are compelled to bear, yet, if involuntary unemployment should be wiped out completely, there would still remain for industrial employees certain hazards directly connected with their occupations.

We do not know accurately the number of industrial accidents that occur annually in the United States. But it seems probable (in view of estimates that have been made) that we have every year about 17,000 fatal accidents in industry,³ some 1,400,000 that cause some loss of time from work, and more than 40,000,000 that require little attention. Occupational diseases are also more common than is generally known. Workers in paint factories may contract lead poisoning; in textile mills, tuberculosis; and in leather-tanning plants, anthrax. Girls who paint luminous watch dials sometimes succumb to radium poisoning, and workers in brass foundries suffer from inhaling zinc fumes.

Tuberculosis claims an especially large number of victims among industrial workers throughout the world. Following is an extract from the report of an official investigation into the high tuberculosis rate among Welsh quarrymen:

While the investigations were confined to one district, the conclusions arrived at apply to the whole of the Welsh slate-bearing areas. It has been thought that the high rate of tuberculosis among the quarrymen of North Wales is mainly due to poor feeding, particularly to excessive tea drinking. The report recognizes diet as having played a part in the causation of the high death rate. But with regard to the slate workers, the problem of prevention of lung disease among them, arising out of their occupation, is the dust problem.

From long contact the clothes of the workers in the sheds are saturated with slate dust. The floors of the sheds are covered with dust, and the ledges and beams even to a height of twenty feet or more from the ground are covered on their upper surfaces with fine dust to a depth of half an inch. Currents of air and vibration from the machinery keep the dust floating in the atmosphere. Quartz formed 35 per cent of the whole, and particles of this substance from 1 to 5 microns in diameter were plentiful. Mica and chlorite formed the bulk of the remainder, mica predominating.

So far as seriousness is concerned, this statement is one that could be duplicated in many countries and many industries. And in most cases we have an abundance of information relative to the measures which, if adopted conscientiously and extensively, would lessen

³ A startling illustration of industrial hazard appeared in a statement in *The New York Times* (November 24, 1929) to the effect that the Window Cleaners' Union loses almost 2 per cent of its members each year through accident.

greatly the dangers of hazardous occupations. For occupational diseases and accidents can be reduced materially by the installation of fans to carry off dust and fumes; of facilities for changing from street to work clothes, and for washing up thoroughly at lunch time and again at the close of the day, to lessen the danger of infection; of safety devices to guard against injury from high-speed machinery, and so on. Through these and similar measures, it would be possible to shorten the long list of dangerous occupations and reduce the heavy burden of risk that now falls upon the workers. The legal prohibition of the manufacture of phosphorous matches is a sample of what can be done, if only the importance of the issue is once generally realized.

In addition to lessening industrial misfortunes of these kinds, provisions have been made in some instances for insurance against the economic hardships they entail. In some European countries it is obligatory upon employers to provide insurance against loss of time from sickness, though in most cases the employees themselves are required to contribute something toward the payment of the premiums. In the United States most sick benefits are paid through fraternal orders or trade unions. To be of much avail in connection with occupational diseases, insurance of this kind must be extended to take care of the entire period of disability.

So far as industrial accidents are concerned, the several states of the United States (with the exception of one only) have written into their legal codes Workmen's Compensation Acts, which provide for payment by the employer of a weekly benefit over a stated period when the worker is injured in the line of duty, and of a stipulated amount in case of accidental death. The obligation is frequently handled by employers through the agency of insurance companies. The benefits, it should be added, are usually so small that it may fairly be said that the risks of dangerous occupations are in America borne very largely by the workers themselves.

INSURANCE

We have referred so often, in our discussion of business risks, to transferring the hazards to specialists in risk-bearing, that it seems desirable to give some attention to the principles and practice of insurance and speculation.

The Nature of Insurance. Insurance is a cooperative arrangement by means of which the losses resulting from a given type of risk are shared by many persons who might be affected adversely

by this risk, instead of being borne by the relatively few upon whom the blow actually falls.

Through the medium of insurance, the financial loss caused by the destruction of a house by fire, of an automobile by collision, or of earning capacity by death or disability, is met by "benefits" paid from a fund accumulated for the purpose. This fund is the result of *small* payments ("premiums") made by *all* who are insured against the hazard in question. In this way, funds are collected and paid out in such manner that each member of the group pays his share of the *total* losses inflicted upon the group by the hazard insured against, and the cost to the individual member is relatively slight.

The Basis of Insurance. *Large numbers and reliable statistics* are requisites of a successful insurance plan. Uncertainties that are not calculable for individual instances may be estimated with considerable accuracy when a large number of cases is dealt with. For example, statistics collected over a long period of years give a good idea of the probable death rate among the members of a large group. Just which of the million policyholders of an insurance company will die within the year cannot be foretold, but the *number* that will fail to survive can be predicted with surprisingly slight error. It is the business of actuarial experts to estimate *how many* (but not which *particular individuals*) among those insured against risks will suffer from fire, burglary, automobile accidents, and other disasters and, as a consequence, will demand benefits as agreed upon in the insurance policy.

We see, then, that there is safety in numbers, and that, by combining a great many individual uncertainties, the *possibility* of loss for the individual is converted into a *certainty* of loss for the group. This certain and predictable loss is distributed among the insured on the basis of the amount of protection each is carrying, and a charge is made to cover administrative costs. By paying a small sum, a person may make monetary provision against any of many types of hazard. For example, by paying an annual premium of approximately \$20.00, a man thirty-five years of age may make certain that upon his death his beneficiary will receive the sum of \$1000.

A Reduction in Uncertainty. Insurance takes many forms and covers a large number of hazards. But in all cases, it should be noted, the insured disposes of the uncertainty by accepting a small definite loss (the premium payment) in order to relieve himself of a loss

which may never come to him, but which, if it should come, would be very burdensome because of its size. Nor does the insurance company itself run any great chance of loss. For if its statistics have been calculated correctly, the receipts from premiums should be adequate to take care of all benefits that must be paid. Indeed, if they should prove to be inadequate, larger premiums will be demanded in the future, as was the case recently in Philadelphia, when rates for automobile insurance advanced sharply because of an increase in the number of automobile accidents among policyholders. It may be said, then, that insurance is a means of reducing *uncertainty*, though it does not necessarily lessen the number of *losses*. Through the use of statistics and the application of the law of large numbers, that which has been highly uncertain is turned into a fairly sure thing.

Insurance and the Reduction of Loss. But insurance may, and sometimes does, bring about a positive reduction in losses. For the payment of premiums is irksome to policyholders, and premium payments may be reduced in amount if the hazards insured against are lessened. That they can be lessened in many instances is beyond question. Thus life can be lengthened by proper attention to the laws of health; fire hazard can be reduced through the introduction of sprinkler systems and adequate fire-fighting apparatus; robberies can be lessened by the installation of burglar alarms and the development of better police protection, and so on.

Indeed, some of our leading authorities on the subject regard the reduction in loss as the most significant service performed by the institution of insurance—important though it is to relieve individuals, through group action, of hazards that they are unable personally to assume. Though spreading a loss by means of insurance is better than having it borne by an individual, the reduction or elimination of the loss is still more desirable. The fact that insurance appears to aid in the good work of reducing losses is an excellent reason for applying the insurance principle to risks that are especially burdensome to industrial workers. It may well be used as an argument for extending unemployment, sickness, and permanent disability insurance more widely into American industry, for in this way some of the uncertainties that now press heavily upon the workers, and cause concern to conscientious employers as well, might be materially lessened.

CONSTRUCTIVE SPECULATION

We have spoken of deferred delivery contracts and hedging as devices which the business man may use to protect himself against price fluctuations in the purchase of materials. These two operations are a part of the larger subject of speculation. Speculation consists of "dealing in things the future prices of which are eminently uncertain."⁴

Commodity Exchanges. We shall confine our attention very largely to dealings that take place in the commodity exchanges, for it is here that we see most clearly the constructive function that speculation may perform. The most important of these exchanges are those associations of dealers in large cities that provide a continuous market for cotton, wheat, sugar, corn, coffee, and other types of commodities. If a commodity is to be handled in an organized market, it must be capable of standardization so that quantities and qualities may be expressed readily; it must be important enough to occupy the attention of many buyers and sellers; and it should, moreover, be liable to considerable fluctuations in price. The two commodities that meet these conditions most fully in this country are wheat and cotton.

"**Cash Contracts**" and "**Futures Contracts**." The members of a commodity exchange stand ready to enter into either *cash contracts* or *futures contracts*. A cash contract may be a "spot" transaction (in which case delivery is made at once) or a "deferred delivery" contract (with delivery to be made on a specified future date). The contracting parties are persons whose business it is to sell and buy, and actually *deliver* and *accept*, the commodities in which they deal. It is important to bear in mind that *the cash contract is fulfilled by actual delivery of the commodity contracted for*.⁵

This is not true of futures contracts. "A futures contract may be defined as a contract for the sale of a stipulated amount of a specified grade of some commodity at a fixed price at a future date."⁶ This sounds very much like the deferred delivery contract mentioned

⁴ Alfred Marshall, *Industry and Trade*, New York, The Macmillan Company, 1928, p. 252.

⁵ G. Wright Hoffman, *Future Trading and the Cash-Grain Markets*, Washington, United States Department of Agriculture, Circular No. 201, January, 1932, p. 7.

⁶ Charles O. Hardy, *Risk and Risk-Bearing*, Chicago, University of Chicago Press, 1937, rev. ed., p. 204.

above, but its object and operation are quite different. The purpose of the futures contract is not to dispose of or get possession of physical commodities, for "in the purchase or sale of a future, it is the exception rather than the rule for the contract to be fulfilled by actual delivery."⁷ The speculators who enter into futures contracts are interested not in the commodities themselves, but merely in the profit they hope to reap through these market transactions. Consequently, when the time for delivery arrives, it is the usual procedure to "settle" by paying or receiving (as the case may be) the difference between the contract price and the market price prevailing on the day on which the terms of the contract must be met.

If, then, a seller of wheat agreed to deliver on April 1 at 90 cents, and the market price on that date turned out to be 88 cents, he would collect from the buyer 2 cents a bushel, this amount representing the profit he would make if he fulfilled the contract and actually delivered the wheat. If, on the other hand, wheat were selling at 92 cents on April 1, the seller would be required to pay the buyer 2 cents on each bushel contracted for. It may be said, therefore, that futures transactions are in effect wagers on whether the price will rise or fall. But in many instances these "bets" are based on careful estimates of extremely able business men who give their entire time and attention to the study of world conditions of supply and demand, and then back up their deliberate judgments with hard cash.

Buying "Deferred Deliveries" to Shift Risk. Our special interest, however, is the use of speculation as a means of handling business risks. We may take, by way of illustration, the familiar example of the miller who, through dealings in the wheat exchange, protects himself against fluctuations in the price of wheat.

Let us suppose that the miller has been asked by a baker to quote in advance on the delivery of 100 barrels of flour each month, over a period of six months. We may assume, further, that the miller's productive capacity is 100 barrels a month, and that he wishes to buy his wheat as he needs it for milling into flour. How, in view of possible changes in the price of wheat, can the miller make a contract, some months in advance of delivery and at a specified figure, without running considerable risk of loss? (For his raw material, wheat, may have risen in price as he seeks, month by month, to secure the amount required to fulfill his contract.)

⁷ G. Wright Hoffman, *Future Trading and the Cash-Grain Markets*, p. 7.

The problem would be a difficult one in the absence of a wheat exchange. But the existence of such an exchange enables the miller, today, to place orders for wheat to be delivered each month at prices quoted today for future delivery. Thus, the cost of the miller's raw material is definitely known, and he may use this figure as the basis of his quotation to the baker, secure in the knowledge that by buying for deferred delivery he has insured himself against possible price fluctuations that are wholly beyond his control. Having shifted a particular hazard to a specialist in risk-bearing (a speculator), he is able to give his undivided attention to the task of milling flour, in which he is himself a specialist.

"Hedging" to Shift Risk. But the glove may be on the other hand, the miller wishing to manufacture for stock, turning wheat into flour day by day, in order to keep his employees busy and to have on hand at all times sufficient flour to meet the needs of his customers. In this way, his production may regularly be a month in advance of sales. But the selling price of flour, when it is finally disposed of, will usually be based on the cost of wheat *at that particular time*, and not upon its cost at the time the wheat was actually purchased. How, under such conditions, can the miller guard against a drop in the price of wheat and a consequent loss in revenue from the sale of his flour? He may do it through the process known as "hedging," which involves the simultaneous purchase of physical wheat for immediate delivery and the sale of wheat futures.

Let us imagine, for the sake of simplicity, that the miller manufactures every month 10,000 barrels of flour to be sold on the first day of the following month. If five bushels of wheat make a barrel of flour, the miller on January 1 will buy from a dealer in grain 50,000 bushels of wheat at (say) \$1.00, to be milled in the course of the month. At the same time, in order to make a perfect hedge, he sells in the futures market, for delivery on February 1, 50,000 bushels of wheat at \$1.00. Now, whatever may happen to the price of wheat during the month of January, he will find that his hedging operation has protected him against loss resulting from fluctuations in wheat prices. The transaction of January 1 is as follows:

January 1

Miller buys 50,000 bushels of physical wheat at \$1.00 per bushel.

January 1

Miller sells 50,000 bushels of futures wheat at \$1.00 per bushel.

On February 1, wheat may be selling at \$1.02 per bushel, in which case the following situation exists:

February 1

(Wheat selling at \$1.02)

Miller sells flour at a price based on \$1.02 wheat, though his wheat actually cost only \$1.00 per bushel. Hence, he *gains* 2 cents per bushel, or \$1000.

February 1

Miller delivers at \$1.00 (the contract price) wheat which actually costs him \$1.02, or pays the difference to speculator. Hence, he *loses* 2 cents per bushel, or \$1000.

Or wheat may be selling at 98 cents on February 1, with these results:

February 1

(Wheat selling at 98 cents)

Miller sells flour at a price based on 98-cent wheat, though his wheat actually cost \$1.00 per bushel. Hence, he *loses* 2 cents per bushel, or \$1000.

February 1

Miller delivers at \$1.00 (the contract price) wheat which he buys on February 1 at 98 cents, or receives the difference from speculator. Hence, he *gains* 2 cents per bushel, or \$1000.

This illustration shows that, by hedging, the miller has denied himself the profit that would have been his if, in the absence of a hedge, the price of wheat had advanced. But he has likewise insured himself against a possible decline in the price of wheat which would have entailed a loss. When the miller hedges, therefore, *his gains consist of the normal gains to be realized by manufacturing wheat into flour*. They are, in a word, precisely as much as they would be if the price of wheat were never-changing. Indeed, the miller's object in hedging is to render himself immune to any price changes that may take place.

The "Imperfect Hedge." We have said that a perfect hedge—one which completely eliminates loss or gain through fluctuations in the price of raw materials—is possible only when the *cash* and *futures* prices are identical. But it is quite possible to make a limited hedge when these two prices vary.

Let us suppose, for example, that when the miller buys physical wheat at \$1.00 on January 1, he finds that the price of February futures is 98 cents. Any hedge for a month he now enters into will involve the loss of 2 cents a bushel, as we may see from the following statement:

January 1

Miller buys 50,000 bushels of physical wheat at \$1.00 per bushel.

January 1

Miller sells 50,000 bushels of futures wheat 98 cents per bushel.

If, on February 1, wheat should be selling for 97 cents a bushel, the miller would find himself facing the following situation:

*February 1**February 1*

(Wheat selling at 97 cents)

Miller sells flour at a price based on 97-cent wheat, though his wheat actually cost \$1.00 per bushel. Hence, he *loses* 3 cents per bushel, or \$1500.

Miller delivers at 98 cents (the contract price) wheat which he buys on February 1 at 97 cents, or receives the difference from speculator. Hence, he *gains* 1 cent per bushel, or \$500.

Net loss on hedging transaction, \$1000

If the February 1 price of wheat should be \$1.03 instead of 97 cents, the effect upon the miller's fortunes would be the same, as witness:

*February 1**February 1*

(Wheat selling at \$1.03)

Miller sells flour at a price based on \$1.03 wheat, though his wheat actually cost only \$1.00 per bushel. Hence, he *gains* 3 cents per bushel, or \$1500.

Miller delivers at 98 cents (the contract price) wheat which actually costs him \$1.03, or pays the difference to speculator. Hence, he *loses* 5 cents per bushel, or \$2500.

Net loss on hedging transaction, \$1000

However, if the February futures price should be higher than the January cash price (say, \$1.02 a bushel as against \$1.00), the miller is bound to gain 2 cents a bushel if he hedges, regardless of the cash price prevailing on February 1, as is shown in the following illustrations:

January 1

Miller buys 50,000 bushels of physical wheat at \$1.00 per bushel.

January 1

Miller sells 50,000 bushels of futures wheat at \$1.02 per bushel.

First, let us suppose that the February 1 cash price of wheat is 98 cents.

February 1

(Wheat selling at 98 cents)

Miller sells flour at a price based on 98-cent wheat, though his wheat actually cost \$1.00 per bushel. Hence, he *loses* 2 cents a bushel, or \$1000.

February 1

Miller delivers at \$1.02 (the contract price) wheat which he buys on February 1 at 98 cents, or receives the difference from speculator. Hence, he *gains* 4 cents per bushel, or \$2000.

Net gain on hedging transaction, \$1000

Finally, if wheat were selling at \$1.03 on February 1, this hedging transaction would still yield \$1000 of gain, as appears below:

February 1

(Wheat selling at \$1.03)

Miller sells flour at a price based on \$1.03 wheat, though his wheat actually cost only \$1.00 per bushel. Hence, he *gains* 3 cents per bushel, or \$1500.

February 1

Miller delivers at \$1.02 (the contract price) wheat which actually costs him \$1.03, or pays difference to speculator. Hence, he *loses* 1 cent per bushel, or \$500.

Net gain on hedging transaction, \$1000

The fact that most hedges are *imperfect* rather than *perfect* does not mean that they fail to perform a useful function. As our several illustrations have demonstrated, the hedge does eliminate the *uncertainties* of the situation. If the miller makes a perfect hedge, he is in the same position as though the cost of his raw material remained always fixed. If the futures price of wheat is *lower* than the cash price, he must include among the costs of production this *known, definite*, additional expense; and if the futures price is *higher* than the cash price, he may safely depend upon the futures *gain* to offset a part of his costs of production. In any case, he has substituted *certainty* for *uncertainty* by hedging, and thus is enabled to carry on his business without worry about unpredictable changes in the price of his raw material.

Social Gains Through Speculation. Whether or not the speculator performs a useful function in the economic world is a question that is often raised. Without attempting to give a detailed answer, it may be said for professional speculators that they shoulder risks which they are better able than others to bear, thus relieving many producers (such as our miller) of burdens which the latter are ill-prepared to carry.

Their operations lead, moreover, to a greater uniformity in both

the use and the price of a given commodity, and this must be reckoned as a social and economic gain. The grain speculator, for example, learning that crop failures in certain parts of the world will bring a shortage of wheat, immediately seeks to buy contracts for the future delivery of wheat, and his activities raise the price. As a result of his purchases and those of other speculators, the price of wheat is moderately high over a long period instead of being low for a while and extremely high at a later time.

The rise in price has the further beneficial effect of aiding in the conservation of the available stock of wheat. Were prices to remain low, the consuming public would be unaware of the necessity of economizing, bread would probably continue to be wasted, and something approaching a famine might be experienced before the coming of another harvest. High prices (resulting from the speculators' activities and passed on to the public by the sellers of bread) serve as danger signals; and thus the physical commodity itself, as well as the price, is spread fairly evenly over the period of shortage. In case the speculators anticipate an unusually large supply, they force down the price through their sales of futures. In this way they encourage the public to consume the article in larger quantities, again spreading its use over the period in question and contributing also to price stability.

Stock Speculation. Speculation in stocks, as practiced on the New York Stock Exchange and other exchanges in this and foreign countries, seems to many to be much less useful socially than speculation in commodities. And yet speculation in stocks does provide a "continuous market" for securities and thus makes it possible for the general public to participate more fully in the ownership of industry. Moreover, it is probable that speculation in stocks does something to prevent violent changes in the prices of securities by anticipating changes in the conditions of a given concern or of business in general.

It cannot be denied, however, that in both stock exchanges and commodity exchanges there is considerable dealing that savors of gambling, as well as a certain amount of manipulation designed to mislead the unwary. In a later chapter we shall deal briefly with recent legislation designed to prevent the sale of fraudulent securities. Without attempting to minimize the harm that is chargeable to the organized exchanges, we should recognize the fact that they also confer benefits upon society; and we may leave the subject

with the observation of Professor Marshall to the effect that "for the present at least the evil [which is attributable to speculation] has to be taken with the good."

1. Some of the uncertainties of economic life are attributable to the fact that production today is usually very "roundabout." Explain.
2. In what way does specialization lead to an increase in business hazards?
3. What is the relation between uncertainty and the fact that production is carried on in anticipation of demand?
4. Who are the risk-bearers in economic society?
5. What kinds of uncertainties are borne by business enterprisers?
6. Indicate the manner in which several types of risks of business enterprise may be lessened or shifted.
7. How may scientific management be used to reduce the hazards of doing business?
8. "Accurate knowledge may be prescribed as the most effective remedy for uncertainties in marketing." What kinds of information are useful in this connection?
9. Alfred Marshall says that "no insurance can be effected against the great majority of business risks." What, then, can be done about them?
10. In what way are "profits" and "losses" related to business uncertainties?
11. Industrial workers are required to bear the risk of temporary unemployment. What are the causes of unemployment of this kind?
12. How may the hazards of temporary unemployment be lessened?
13. Give several examples of the loss of industrial employment resulting from technological progress. Why is unemployment of this kind likely to be particularly serious?
14. Can you suggest methods of eliminating or lessening the hazards of technological unemployment? Should we, under the circumstances, discourage the invention of labor-saving devices?
15. What is the estimated number of fatal industrial accidents that occur in the United States annually? Of less serious industrial accidents?
16. Discuss methods of reducing industrial accidents and combating occupational diseases.
17. What is the purpose of Workmen's Compensation Acts? How widely have they been adopted in this country? Who bears the expense?
18. What part do statistics play in the insurance business? Could this business be conducted safely without the use of statistics?
19. Through insurance, "the possibility of loss for the individual is converted into a certainty of loss for the group." How, then, does insurance help to lessen hazards?
20. What are "premiums" and "benefits"?

21. When a man takes out insurance, he accepts a definite loss in order to relieve himself of a loss which may never come to him. Thus stated, insurance sounds like a very poor investment. Explain the "catch" in the statement.
22. The insurance company itself does not run any great chance of loss. If it relieves its policyholders of risk, how can the company avoid bearing the risks itself?
23. What is "speculation"?
24. Define the "futures contract," and explain its business uses.
25. What is the purpose of "hedging"?
26. Precisely how does "hedging" differ from "buying futures"?
27. Can speculation be justified from the economic point of view? Explain.

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10. *The Process of Exchange*

The Relation of Specialization to Exchange. In primitive industrial society people made goods chiefly for their own consumption. Under conditions of modern specialization an individual has no intention of consuming all, or even most, of his product. A specialist works with the deliberate idea of producing more of a given commodity or service than he himself will consume, so that he may exchange this excess for other commodities and services which have been created by other producers.

The farmer cannot consume all the food products he raises, the tailor cannot wear all the clothes he makes, the contractor has no idea of occupying all the houses he builds, nor has the surgeon a personal use for the many operations that represent his contribution to production. But these producers, who of course are specialists, have a definite desire for other commodities and services; and so, in effect, they take their surpluses of food, clothing, houses, and surgical operations to other people, who give them in exchange shoes, automobiles, theatrical performances, and other economic goods they desire.

Difficulties of Direct Exchange. We have, then, exchange going hand in hand with specialization. Specialization would be out of the question without exchange, and exchange could hardly exist without specialization. The means by which the exchange of commodities and services is effected are of several kinds. First of all is *direct exchange* or *barter*, which is the type resorted to in simple stages of economic society and which consists of trading goods for goods.

But barter becomes extremely inconvenient as specialization increases. Imagine, for example, the difficulties encountered by an instructor in economics who is trying by direct barter, instead of by money exchange, to convert his specialized services into other services and commodities. This teacher of economics, needing a suit of

clothes, goes to a tailor, who is also a specialist, and offers to exchange five hours of economics for one suit. But if the tailor should not be interested in economics, our instructor would not be able to make a trade; and he might have some trouble in locating a tailor who would be willing to exchange clothing for training in economic principles. There is always a danger, then, that in direct barter one of the parties in question will not care to receive what the other has to offer.

There is also the difficulty, in our illustration, of determining just how many hours of economics should be given in exchange for a suit of clothes. Perhaps one hour given by a master of the subject would be sufficient, whereas it might take a dozen hours of teaching by one who knew less of economics. The tailor, in our example, would probably not be able to decide the true value of the service the teacher is offering, whereas the head of an economics department in a great university could appraise this particular service much more satisfactorily. Certainly the tailor would hardly be prepared to express the value of suits of clothes in terms of the many different kinds of economic goods that would be offered him under conditions of barter.

Or suppose that our instructor wishes to buy not a suit of clothing but a plate of ice cream. Shall he offer to the ice-cream dealer (say) two minutes of economic teaching? This would seem at first thought to be absurd, and yet he could scarcely afford to give more than two minutes in exchange for the ice cream, if his time were as valuable under a system of barter as it appears to be in a money economy. And, of course, the amount of good the ice-cream dealer would derive from a discussion of that length would probably be almost nil.

There is the further fact that the services of this instructor must be used day by day if they are to be of any use. It is impossible for him to save up his teaching for a month, and then dispose of it all in one day as he might with material goods. Consequently, we may say that his services are perishable; and this is true not only of services but also of many kinds of material goods throughout economic society.¹

Advantages of Indirect Exchange. Because of the inconveni-

¹ An interesting example of modern exchange by barter is afforded by the Barter Theatre, of Abingdon, Virginia, to which admission may be gained by persons who present, at the box office, bread, cakes, fruit, vegetables, fowls, dairy products, and other commodities acceptable to the management.

ence of barter exchange and the impossibility of carrying it on satisfactorily, we now usually employ either *money exchange* or *credit exchange*. In money exchange, the instructor of our illustration is paid in (say) dollars, and then, with each of these dollars or portions of dollars, he purchases from someone else the things he needs for his comfort and well-being. Money is in effect a common denominator to which we reduce all commodities and services. Its conveniences are many, as we shall note in our discussion of money in the next chapter.

One of the greatest of these conveniences lies in the fact that money is readily accepted by all members of an industrial society. Our instructor has no difficulty at all in getting the tailor to accept money in exchange for a suit of clothes, since the tailor may readily exchange these dollars for things that appeal to him more strongly than economic training. The instructor's difficulty of splitting up his specialized service into portions small enough to buy the plate of ice cream easily has also disappeared. Instead of a few minutes of economic discussion, he pays the dealer fifteen or twenty cents from his money income. The numerous transactions of these kinds that are daily taking place result promptly in the establishment of definite prices, expressed in terms of money, for all commodities and services. Thus, there is no difficulty in finding out how much the instructor should give for the suit of clothes. The price has already been established at, let us say, \$50.

Finally, there is no need for the instructor to search for sellers who are willing to accept economics in exchange for their goods, since he may dispose of his services at a central point, a college or university, to which come students anxious to buy this particular service. In the absence of money exchange, it is entirely possible that these students of economics, eager for knowledge of the subject, would come to the university prepared to pay for their instruction in potatoes, farm machinery, street paving, medical service, and other kinds of desirable commodities and services which, however, would not be needed or accepted by the instructor. But in a money economy, they pay their tuition in dollars, some of which the instructor receives in payment for the service he renders.

Credit Exchange. Money exchange is a form of indirect exchange, in contrast to barter or direct exchange. A second type of indirect exchange is carried on by means of credit. In recent years the amount of business transacted by credit has increased tremen-

dously. Money exchange consists of giving money in return for commodities or services, whereas credit exchange consists of giving in return for commodities and services a promise to pay at some future date. The principle, of course, is precisely the same. When money is paid for an economic good, the seller receives immediate purchasing power which he may use today if he likes. The only difference in credit exchange—that is, when a promise to pay at a future time is given—is the postponement of the actual transfer of purchasing power until the date stipulated in the agreement. Even this distinction is less important than it might seem to be at first sight, because in many instances it is possible for the seller of goods to convert the credit immediately into purchasing power by selling it to someone engaged in a particular line of economic activity—that is, in the purchase and sale of credit instruments such as promissory notes, or promises to pay. Nevertheless, credit exchange is in the nature of an incomplete transaction, since only half of the exchange has taken place, the other half remaining to be performed at another time.

If a farmer should buy an automobile, giving in payment tons of hay or bushels of wheat, he would be engaging in barter, or direct exchange. If he should pay cash for the car, it would be a case of money exchange, one type of indirect exchange. If he should get possession of the car by signing a contract in which he agreed to make twelve monthly payments covering the amount of his purchase, it would be an instance of credit exchange, a second type of indirect exchange.

The Use of Money in Exchange. There is one point about money that must be borne in mind throughout the entire study of economics. It has been mentioned before, but can scarcely be overemphasized. This is that money is essentially a means of exchange, and ordinarily is desired only in order to exchange it for something else. If, for instance, the instructor in our example receives \$100 a week, this money is meaningless except as it provides the means to secure the economic goods he wants. In all probability, he would work without a money salary if he were guaranteed the commodities and services essential to a good standard of living. And the *number* of dollars he receives likewise has no significance, except as it is translated into purchasing power. He would just as soon have \$50 a week as \$100, if the \$50 would buy as much in the way of commodities and services as \$100 buys. People do not desire money for the sake of the money itself, but for what it will buy.

These observations are made simply to emphasize the point that what men do is deliberately to create surpluses of commodities and services which, in the final analysis, they exchange for commodities and services created in surplus by others. Most of our economic thinking will be simplified if we can forget that money is ever resorted to in economic transactions. There are times, of course, when our economic reasoning relates to money, but in most instances (as we have observed before) it has to do with commodities and services.

The Gainers Through Exchange. The question frequently arises as to who benefits when an exchange takes place. If, for example, I trade a fountain pen for a pocket knife, do I or does the other trader win? The answer is that in every free trade both parties expect to gain and ordinarily do gain. Having voluntarily given up the fountain pen in exchange for the knife, it is obvious that I am getting something I would rather have than the thing I give up. The same remark applies to the other party in the trade.

If, however, I should conceal the fact that the fountain pen leaks, or if the other party professing to trade a good knife in reality trades one that has a broken blade, one of the traders may get the worst of the bargain. This, however, is not a trade but a swindle, since the true condition of the pen or knife was not set forth before the transaction took place. This question of exchange will arise again in connection with our discussion of international trade. For the present, it is enough to say that exchange consists of giving up things which are desired less by the person relinquishing them than are the things which he receives in return.

SOME AGENCIES OF EXCHANGE

In direct exchange, or barter, the surpluses of some producers are exchanged for those of others, so that they may be consumed by persons for whom they have greater utility than they have for the original owners. In indirect exchange, likewise, the problem involved is the transfer of economic goods from the original producer to the ultimate consumer.

Owing to the great size and complications of our modern economic society, this transfer is sometimes a very involved process and requires the assistance of many intermediate agents. The process is often referred to as the "distribution of goods"; and there is no objection to the use of this term, provided only it is not confounded

with the "distribution of income" which (as we shall see later) has to do with the division, among the owners of the factors of production, of the economic goods or "product" which these factors have jointly made.

Functions Performed by Agencies of Exchange. The parts played by the several agencies of exchange may be made clear through the use of an illustration of comparatively simple exchange. A Virginia apple grower has picked and barreled his season's crop. He has, let us say, 5000 barrels of apples to dispose of. How shall he get them into the hands of the consumers? Clearly not by direct exchange, for the delivery of small quantities of apples to many thousands of housewives would be expensive and hopelessly drawn out. Several better methods are open to him. We may suppose that he has decided upon a plan often followed by fruit growers, that is, to retain ownership of the fruit until spring, when prices are likely to be higher than in the fall, and then to dispose of the crop through a commission house.

But this is an arrangement in which he requires assistance. He calls upon some of the agencies of exchange for help. *Form* utility the farmer has already created, but *time*, *place* and *possession* utility must be added before the apples are available for the consumers, that is, before they have been *completely produced*. Lacking storage facilities of his own, our farmer arranges with a storage concern in Washington to hold the 5000 barrels of apples from September until April. Thus time utility is created, for the apples will be more desired in April than in September, owing to the greater scarcity of the fruit in the spring months.

But the crop must be transported from the farm to the storage house; and this necessity entails, first, a transfer by truck to a near-by railway station, then a railway shipment to the city, and finally another transfer from the Washington freight depot to the storage plant. Each of these three steps in the journey, which may or may not have been performed by separate agents, adds place utility to the product, for the apples have made progress towards the ultimate consumer.

Having running expenses to meet, such as wages of labor, taxes, and so on, the farmer secures from his banker a loan to carry him over until the sale of the apples in the spring brings him an income. Since an immediate sale of the crop in the fall would have been necessary had the loan not been forthcoming, the banker must be

credited with a part in promoting the storage; that is to say, he has aided in the creation of time utility. Moreover, the crop itself or the building in which it is stored (or both) will ordinarily be insured, so that the insurance company also is entitled to credit for performing time utility.

With the coming of spring, the apples are delivered to a commission merchant, sold by him to wholesalers (perhaps in hundred-barrel lots), thence to the retailers by the barrel, and finally to the consumers by the half- or quarter-peck. The commission man, wholesalers, and retailers are all merchants, and every transaction they carry on constitutes a creation of possession utility since each sale brings the product closer to its final destination, which is its possession by the consumers. It is probable that, in connection with these several sales, new place utility also is added, since a sale usually involves the physical transfer of the goods. (It would not be true, of course, in the sale of land—and other examples could be cited.)

In the case of many commodities, the goods are advertised—another contribution to possession utility. Or they may be bought by speculators in anticipation of an advance in price, which would be an addition of time utility. Very important throughout the whole process is the use of money and credit, which will be described in detail in later chapters. These various agencies of exchange, it may be said, would find little or nothing to do in a primitive society, but it is inconceivable that an extensive economic order, such as we have today, could be carried on without their assistance.

Exchange, Marketing, Distribution. The activities included in the "young profession of marketing"² are essentially the same as the functions of exchange outlined above, as may be seen by reference to any of the standard textbooks on the subject.³ The "marketing functions" stressed in these books are (1) "those involving transfer of title," which are the equivalent of the theoretical economist's possession utility, and (2) "those involving physical supply," with special emphasis on transportation (*place* utility) and storage (*time* utility). The terms "exchange" and "marketing" may therefore be used interchangeably, with little if any loss of accuracy; and to these two may safely be added a third, synonymous term—"distribu-

² *Annals of the American Academy of Political and Social Science*, May, 1940, p. xi.

³ E.g., C. F. Phillips, *Marketing*, Boston, Houghton Mifflin Company, 1938; P. D. Converse, *Essentials of Distribution*, New York, Prentice-Hall, Inc., 1936.

tion"—provided only that this distribution of *goods* is not confused with the distribution of *income*.⁴

Costs of Exchanging Goods. A great deal has been written about the high cost of exchanging, marketing, or distributing goods; and this cost is said to result, in turn, in the high cost of living. It is sometimes urged that the existence of large numbers of "middlemen," each demanding his share of income, needlessly increases the selling prices of many commodities.

The Twentieth Century Fund has made an extensive study of the cost of *distributing* economic goods, as compared with the cost of *producing* them in the first place.⁵ These investigators began by grouping together, as "production," all activities going into the creation of form utility, and as "distribution" the efforts involved in the creation of place, time, and possession utility. Allocating the 66 billion dollars spent for finished goods in 1929, they found that production cost 27 billion and distribution 39 billion dollars. This means that, on the average, approximately 40 per cent of the money spent that year for finished goods went to the producers while almost 60 per cent went to the distributors.

An average of this sort admittedly conceals many and wide differences in *production* and *distribution* costs as between commodities. In general, as is shown by data for more recent years, it costs more to get foodstuff to the ultimate consumer than to distribute manufactured goods. For example, the study of the Twentieth Century Fund indicates that distribution costs in the past decade accounted for the following proportions of retail prices of the goods listed: Cabbage, 82 per cent; carrots, 82 per cent; oranges, 73 per cent; shoes, 48 per cent; gasoline, 56 per cent;⁶ and cigarettes, 52 per cent.⁶ But the distribution costs of foodstuffs are sometimes low (for example, 34 per cent for eggs), and those for manufactured goods are sometimes high (as in the case of rye whiskey, 79 per cent).⁶

It is the publication of figures such as these that arouses discussion as to whether we are not paying too much for the transfer of goods from the farm or manufacturing plant to the consuming public. The question is more easily asked than answered. The distribution costs of many commodities do seem to be disproportionately

⁴ Cf. chaps. 25-29.

⁵ See Paul W. Stewart and J. Frederic Dewhurst, *Does Distribution Cost Too Much?* New York, Twentieth Century Fund, 1939.

⁶ Taking no account of taxes on the commodity.

large. But if they are so in reality, why do not more capable business men enter the field, eliminate the wastes of distribution—if there are wastes—and thus undersell our present-day enterprisers? In some cases, the attempt is being made with varying degrees of success. But the benefits of "manufacturer-to-consumer" exchange are often more attractive in prospect than in practice.

The fact is that the consumer cannot, with any degree of satisfaction, deal *directly* with the manufacturer. If goods are to be manufactured cheaply, they must usually be made on a scale vastly larger than would be necessary to meet local needs alone. Some consumers, then, are too remote to be able to buy at the factory. And if they purchase through stores set up by the manufacturer, they are still, in effect, buying from a retailer (a distributor), even though the shop bears a manufacturer's name.

Unquestionably there is waste in distribution just as there is in the earlier stages of production, and perhaps even to a greater extent; and in both instances it should be done away with as thoroughly and speedily as possible. But there is a tendency to underestimate the services rendered by our agencies of exchange. It is easy enough to see that the baker is a productive agent. It is more difficult to give full credit to the truckster who hauls bread, and the grocer who sells it over the counter, simply because they are not creators of form utility. But the promptness and convenience with which one may secure bread depend upon the services rendered by the truckster and grocer quite as much as upon the productive effort of the baker.

"The laborer is worthy of his hire," and the distributor who performs a necessary function is entitled to payment. Without him, specialization as we now have it would be impossible. Perhaps the best evidence of his usefulness—though far from conclusive evidence—is our inability thus far to oust him, even though we recognize that prices are high and may suspect that the middleman is in some way responsible.

Two Economic Fallacies

Two misconceptions relating to exchange may be discussed briefly at this point. The first of these is referred to as the "keep money at home" fallacy, and the second is the "make work" fallacy.

"Keep Money at Home" Theory. The idea that money should be kept at home rather than spent abroad is one that has been inherited from theorizers of the past. The falsity of the theory has been

demonstrated time and again, and yet there are today business men, politicians, and others who apparently believe implicitly in its soundness and who argue vigorously in its defense.

The theory is usually expressed in about these terms: People of a given community—whether a town, a state, or a nation—should buy goods at home instead of bringing them in from the outside. By buying goods at home, home industries are encouraged, local business men prosper, there is plenty of employment for workers, and, as a consequence, prosperity for all. But if goods are purchased away from home, there is a lack of business for the home industries, and consequently a lessened demand for workers in local shops and factories.

This is the way the argument runs, but students who have followed carefully the line of reasoning in our discussion of exchange will realize that the "keep money at home" theory is a fallacious one. Buying goods means giving money, or purchasing power, in exchange for commodities or services. And the person who receives this purchasing power will use it, in turn, to buy commodities and services which he desires. In other words, every time we buy economic goods we engage in a trade, although it is more often indirect trade than barter. In every free trade, as we have seen, both parties benefit. It is obvious that we gain most when we spend our money where we get for it the greatest possible return in the way of commodities and services. If a distant merchant gives more or better goods than the local merchant for the same money, or the same goods for less money, certainly it is foolish for buyers to purchase their goods locally. If local industries are not able, in the long run, to compete with industries at a distance, then it would be economical to allow them to pass out of existence, since they have shown an inability to survive in the face of competition. Indeed, every plea to keep money at home is a confession of weakness on the part of those who make the plea, for money will stay at home without urging if only it can be spent there as advantageously as away from home.

An interesting side light on the "keep money at home" theory is that those who preach it loudest frequently practice it least. The campaigns that dilate upon the dire consequences that will follow upon buying away from home are usually financed largely by the merchants of the town. But do these same merchants buy locally and thus keep money at home? Sometimes they do, to be sure, but only when local manufacturers and wholesalers will sell to them more

cheaply than the manufacturers and wholesalers of other cities. In other words, they exhibit a pronounced tendency to do precisely what the *consumer* is inclined to do—that is, to spend their money where it will bring them the largest quantity of economic goods per dollar of expenditure. All they ask, of course, is to be allowed themselves to send money away from home and bring in goods which they can sell, at an ample profit, to people whom they have “educated” to think it disloyal and unpatriotic and—most perplexing of all!—uneconomic to buy anywhere but in the old home town.

Let us examine, for a moment, a town in which this fallacy has made no headway, and see what is happening in the way of exchange. Goods are being made in this town, but they are goods that the town is equipped to make advantageously. They are goods, therefore, that can to some extent be sold locally without recourse to methods of high-pressure salesmanship, since they are reasonably priced. But they can be sold also—and probably are sold chiefly—in other towns, again because they are made advantageously and the price is therefore low as compared with the prices of similar goods made less advantageously elsewhere. As finished goods move out of town, money flows in to pay for these goods, but some of this money flows promptly out again in payment for raw materials which must be brought in as the basis for more finished goods. People working in factories buy some goods at local stores; possibly they spend part of their wages with Sears, Roebuck and Company or Montgomery, Ward and Company, and thus *send money out of town*. But at the same time their employers are selling commodities that these people have helped to make—to Sears, Roebuck and Company, or Montgomery, Ward and Company, or some other out-of-town dealer—and thus *money is brought back into town*. Through these and similar transactions, money flows back and forth. If it goes out, it just as surely comes back again; and every time it facilitates an exchange between two parties, each of whom is performing some economic act that he is especially well fitted to perform, the money serves, as someone has well said, as a lubricant to the economic machine.

Keeping money at home means doing business only with the home folk, and not with those outside the community. Any group that adopted such a policy rigidly would, of course, be self-sufficient, and it would be bound to suffer in two ways. First, it would have to get along without some kinds of goods that it would like to have, since no community has yet been able to supply itself with everything it needs

and wants, without assistance from other communities. Second, it would have to get along with smaller quantities of goods, since it would be making disadvantageously some goods which, had it not chosen isolation, it could buy cheaply from other communities equipped to make these same goods advantageously. It is very likely that such a community would have *more work to do* than before, but it seems quite certain that it would have *less of economic goods*. Anyone, then, who supposes that the goal of economic society is the *creation of work* is carrying his ideas to a logical conclusion when he advocates keeping money at home; but no one who thinks of the *creation of goods* as the goal should have difficulty in seeing that this goal is more quickly and completely reached by cooperation between communities than by each community trying to be independent of every other.

The people of a community as a whole are not injured by sending out money and getting commodities and services in exchange, though some individuals may suffer and be compelled to turn to new fields of production. The fact that money is spent indicates that the spenders are getting for it something they prize more highly than the money itself. The fact that it is spent *abroad instead of at home* shows that local sellers offer less in exchange than sellers at a distance. All that happens is that money goes out and commodities and services come in—more commodities and services than the community would have, had the money stayed at home by being spent there. In other words, there is released from the home town money which has no significance except as it is exchanged for goods, material or non-material; and there are brought into town economic goods which are capable of being consumed immediately or in the future, and which therefore yield genuine satisfaction.

Nevertheless, we are constantly admonished to patronize the neighborhood druggist, to support local merchants instead of mail-order houses, to buy articles manufactured in the home city, and to use goods made in the United States rather than those manufactured abroad. Political campaigns are sometimes waged on the basis of a protective tariff. And yet a tariff of this kind is simply an artificial means designed to force people to buy goods at home, rather than get them from a foreign country where the goods could be had more cheaply.

"Make Work" Fallacy. The second error into which many persons fall has been termed the "make work" or "lump of labor" fallacy.

The theory here is that there is only a certain amount of work to be done in a community, and it should be spread out so as to keep all workers employed. If people are out of employment, it is thought by some that the wise thing to do is to create work so that they may be employed. If, for example, men are idle in the winter time, it is regarded as a great blessing to have a heavy fall of snow so that these men may be able to earn an income.

From the economic point of view, it would be much better, of course, to put them to work shoveling dirt in the building of a subway instead of clearing snow from the sidewalks. If it is desirable to supply work to unemployed men at all costs, one could easily justify the deliberate destruction, by fire, of all, or a large part, of the buildings of New York, Chicago, or Philadelphia. An action of this kind would provide an abundance of work for builders of all types, and would be just as sensible as praying for snow in order to give employment to the unemployed; and yet there are few who would be so rash as to suggest that the kindling of such a fire would be desirable.

The "make work" fallacy is one which is said by some students of labor problems to be an actuating force among labor unionists. Some unions definitely set an amount of work to be done in a given time. Although labor leaders usually deny the charge, it is true that workers have sometimes decided that just so many bricks may be laid in a day, or so many cigars, and no more, manufactured in a given number of hours. A restriction of output of this kind is often caused by fear on the part of the workers that there will not be enough work to go around. Consequently, to make their work last longer they do less of it each day, although demanding, of course, a full day's pay. In like manner, they oppose the introduction of labor-saving machinery on the ground that it would reduce the amount of employment available for hand workers.

Those who hold and express the opinions outlined above either have a mistaken notion of what exchange really is, or are arguing from the short-run point of view. The error arises through overlooking the fact that whenever commodities or services are created, they themselves constitute the purchasing power with which other commodities or services may be obtained. If, then, the unemployed got busy and made something the general public wanted, it could be exchanged for the things they themselves need. And, since human wants are capable of practically indefinite expansion, there should be plenty of opportunity for productive work, runs the argument. The

difficulty, however, lies in *getting the opportunity* to make the thing that others are willing to buy. Since industry is conducted on a basis of workers employed by enterprisers, the workers are dependent upon employers for an opportunity to make the goods that can be exchanged for the commodities and services necessary to their well-being.

But employers will not manufacture such goods unless there is a demand for them; and oftentimes articles of a particular kind are manufactured in larger quantities than the actual demand warrants. As a result of an overproduction and accumulation of automobiles or radio sets, factories devoted to the manufacture of goods of these kinds may temporarily be closed down. This is exactly what happened in the Ford plant and other automobile factories some years ago. It is frequently said that there can be no such thing as *general overproduction*, since the wants of human beings are unlimited. But there can certainly be *more goods of a given kind* manufactured than will be taken from the market at a price sufficiently high to cover all costs of production, owing to the fact that manufacturers sometimes overestimate the demand for a particular type of goods. "Demand" includes, of course, not only the desire for an economic good, but also the possession of sufficient income to permit its purchase.

Whenever a man produces a good that *other people want and can afford to buy*, he creates purchasing power. For he can take his good and exchange it for some other commodity or service; and in so doing he, in effect, *purchases* something with the good he has made. It follows that there can never be overproduction so long as he and others produce the right kinds of goods, and each in the right quantity. When, a number of years ago, cheap automobiles were for several months a drug on the market, the situation did not arise from too much production, but from too great production of low-priced cars. If the productive power used in manufacturing the surplus stock of cheap cars had been turned into the manufacture of, say, a strikingly new and advanced model, this new car would probably have sold in fairly large quantities to persons of wealth. Until human wants have been completely satisfied, there can be no such thing as *general overproduction*, though, as we have seen above, there may be and often is *misdirected production*—that is, the production of more goods of a certain kind than people wish to possess or are able to buy.

But fine distinctions between general overproduction and mis-

directed production are not likely to interest a worker who is confronted by the concrete problem of how to get or hold a job. Though, from the social point of view, there is no economic justification for stretching out a task, yet from the practical, individual point of view no further justification is needed than the fact that if the worker proceeds at a goodly pace, he will soon be out of a job, whereas, if he restricts his output, he may have steady, continuous employment. Furthermore, the shovelers of snow in our illustration are amply justified in giving thanks for the jobs that have been sent them; for, though the snowstorm has brought no economic gain to society as a whole, these individual workers have been enabled to secure purchasing power which may be the means of warding off starvation.

Of course, if all workers in society were to increase their efforts and, as a result, their output, there would be more commodities and services for all, and the scale of living of all members of society could be raised. Moreover, there would be no difficulty in finding a demand for the additional goods, provided care were taken to produce the kinds of commodities that were wanted, since (1) human wants are far from being completely satisfied, and (2) every good produced constitutes in itself a demand for other goods. For example, if production of all kinds were doubled, a cigar maker who now owns an automobile could have a second car or, if he preferred, could have in its stead a host of other less costly items, such as a radio set, a dress suit, a vacation at the seashore, and so on. These additional commodities and services would be his reward for having doubled his production of cigars.

But the scheme would work equitably only if there were a *general* increase in production. If only the cigar makers were to double their output, the effect would be a much lower price for cigars, and smokers would benefit correspondingly. But there would be no gain for the cigar makers, since the goods they buy would not have increased in quantity and therefore would not have gone down in price. Consequently, though it is quite true that each of us *should* produce as much as possible, there is no assurance of personal benefit unless there is a general movement in the direction of maximum production. From the purely selfish point of view, restriction of output may often be a wise practice to follow.

And so, in applying the label "economic fallacies" to certain theories or ideas that seem to involve unsound reasoning, we should bear in mind the fact that these theories, while fallacious from the

point of view of economic society as a whole, and in the long run, may be entirely sound, as looked at by the individual business man or worker, and considered as short-run phenomena. Since self-interest is a familiar characteristic of present-day economic society, it is not surprising that individuals sometimes follow courses of economic action that seem likely to benefit them in a material way, even though they do so at the expense of the general public. There is no lack, in current economic life, of examples of conflict between individual and social interest.

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1. It is said that exchange goes hand in hand with specialization. Explain the relationship between the two.
 2. Why would it be difficult, if not impossible, to carry on present-day exchange by means of barter?
 3. In what ways does indirect exchange solve the difficulties connected with barter?
 4. Money is referred to as "a common denominator to which we reduce all commodities and services." How does money as "a common denominator" facilitate exchange?
 5. Distinguish between "money exchange" and "credit exchange."
 6. Classify "barter," "money exchange," and "credit exchange" as, respectively, *direct* or *indirect* exchange.
 7. "People do not desire money for the sake of the money itself." Explain.
 8. How is it possible for a gain to be realized by both parties to a trade?
 9. In modern economic society exchange is sometimes a very involved process. Name some "agencies of exchange" that assist in the process.
 10. Why must care be exercised to avoid confusion if one uses the term "distribution" in speaking of the exchange of goods?
 11. Recalling the definition of "production," state whether "agencies of exchange" may properly be thought of as producers. Explain.
 12. Comment on the relative cost of *production* and *distribution*, as indicated by examples cited by the Twentieth Century Fund.
 13. Why is "manufacturer-to-customer" exchange difficult to put into successful practice?
 14. Without the assistance of agencies of exchange, "specialization as we now have it would be impossible." Defend or refute this statement.
 15. State briefly the usual argument advanced in support of the "keep money at home" theory.
 16. "It is obvious that we gain most when we spend our money where we get for it the greatest return in the way of commodities and services." Does this mean buying at home or away from home?

17. Show the connection between a protective tariff and the "keep money at home" theory.
18. According to the "lump of labor" theory, there is only a certain amount of work to be done in a community. Is this true? Why or why not?
19. How may a belief in the "make work" theory lead to restriction of output on the part of workers?
20. How may the expansibility of human wants be used in proving the fallacy of the "make work" theory?
21. Distinguish between "general overproduction" and "misdirected production."
22. Why is it impossible for "general overproduction" to exist in the long run?
23. How could the scale of living of all members of society be raised?
24. "There is no assurance of personal benefit [through an individual producing as much goods as possible] unless there is a *general movement* in the direction of maximum production." Explain.
25. "From the purely selfish point of view, restriction of output may often be a wise practice to follow." Why?

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11. *The Principles of Money*

We have made several references in preceding chapters to the usefulness of money in facilitating the process of exchange. We shall now go into the subject at greater length, describing the nature of money and the functions it performs in a highly developed economic society.

MONEY IN THE UNITED STATES

Since most of our illustrations will be drawn from monetary practice in this country, it will be helpful to have before us a list of the several kinds of money that play a part in our monetary system. They are as below:

TABLE 8. KINDS AND QUANTITIES OF MONEY IN THE
UNITED STATES¹

(December 31, 1947)

Gold.....	\$22,753,887,363
Gold certificates.....	(21,543,973,253)
Standard silver dollars.....	493,462,187
Silver bullion.....	1,937,617,934
Silver certificates.....	(2,246,680,220)
Subsidiary silver.....	941,767,320
Minor coin.....	354,459,247
United States notes (greenbacks).....	346,681,016
Federal Reserve notes.....	25,705,983,315
Federal Reserve bank notes.....	383,658,995
National bank notes.....	104,216,550
Total.....	\$53,021,733,927

¹ From *Circulation Statement of United States Money—December 31, 1947*, issued by the United States Treasury Department. The figures in parentheses are not included in the total, since they are included in other items in the table. Omitted from the table are treasury notes of 1890, which are included in the government statement but "are being canceled and retired on receipt." This item is of slight importance, amounting to little more than one million dollars.

Many people who have been using American money for years are surprised to learn that we have so many kinds of acceptable currency. A few words of explanation about each of these items will help to clear up the situation. Separating the items into two groups (metallic and paper money), we shall examine them briefly. Our new grouping gives us the following outline:

I. METALLIC MONEY:

- A. Gold bullion
- B. Standard silver dollar
- C. Silver bullion
- D. Subsidiary coin:
 - 1. Silver:
 - a. Half-dollar
 - b. Quarter-dollar
 - c. Dime
 - 2. Other metals (minor coin):
 - a. Five-cent piece (of copper and nickel)
 - b. Cent (of copper, tin, and zinc)

II. PAPER MONEY:

- A. United States government obligations:
 - 1. Gold certificates
 - 2. Silver certificates
 - 3. United States notes (greenbacks)
- B. Bank obligations (guaranteed by United States government):
 - 1. Federal Reserve notes
 - 2. Federal Reserve bank notes
 - 3. National bank notes

Gold Bullion. Gold is the basis of the monetary system of the United States, and every piece of money, whether metallic or paper, is measured nominally in terms of the "gold dollar." Prior to 1934, the dollar was defined as 25.8 grains of gold nine-tenths fine. But the Gold Reserve Act of 1934 authorized the President to reduce the gold weight of the dollar by not less than 40 per cent or more than 50 per cent; and on January 31, 1934, President Roosevelt by proclamation changed its weight to $15\frac{5}{21}$ grains of gold nine-tenths fine. The term "nine-tenths fine" refers to the purity of the gold bullion, and means that it consists of 900 parts pure gold to 100 parts of copper alloy.

The gold coin that circulated in the United States before the passage of emergency banking legislation in 1933 actually contained 25.8 grains of gold of this degree of fineness, for every dollar of face value. But gold coin and gold bullion, as well as gold certificates, were "called in" by the President of the United States, by authority of the Emergency Banking Act of March 6, 1933. Monetary gold did not circulate extensively in the United States even before that date, but was used chiefly for bank reserves and for the payment of balances arising out of international trade. It has now been wholly removed from domestic circulation, the gold coin reduced to bullion, and the total stock is now held in the United States Treasury as security against outstanding issues of United States government paper money. However, it can still be obtained, in quantities and at times approved by the Secretary of the Treasury, for use in international trade. Despite the fact that gold no longer circulates as money in this country and that other forms of money are no longer redeemable in gold, *the dollar continues to be defined as a specified amount of gold*, and this amount is at present 15 5/21 grains nine-tenths fine.

Standard money is money that contains the amount of metal necessary to make its value as bullion exactly equal to its value as money. Since gold coin and gold bullion have been the only forms of money in our monetary system having a bullion value exactly equal to their money value, they have constituted the only strictly standard money we have had. The restrictions that were placed upon the use of gold in 1933 brought about a situation in which there is no standard money in general circulation in this country, though there is a large stock of gold bullion in the United States Treasury.

Standard Silver Dollars. Our so-called standard silver dollars are a relic of the bimetallic period of the country's monetary history, when the silver dollar, as well as the gold, was equally valuable as money and bullion, and was therefore genuinely "standard." The silver dollar contains 412.5 grains of silver nine-tenths fine, and is now worth as bullion only about 54 cents. This being the case, it might properly be placed under the classification of "subsidiary coins," which will be dealt with in a later section; but we have followed the time-honored custom of giving the silver dollar a separate heading.

Silver dollars pass freely from person to person in certain parts of the country, particularly in the Far West, where they seem to enjoy higher favor than paper dollars; but, because of their weight and bulk, they are extremely unpopular in some sections of the United

States. Of the 494 million silver dollars in existence on December 31, 1947, only 154 million were actually in circulation. The others were held in the Treasury, and silver certificates circulated in their stead.

Silver Bullion. This item is of recent origin, having arisen almost wholly out of the operation of the Silver Purchase Plan, which will be described later in the chapter. We shall see that the government can make about \$1.43 worth of silver coin from every dollar's worth of newly mined American silver bullion that it buys. Hence, the purchase of silver leads to a large "profit" to the government, and has led to the accumulation of silver bullion. This stock of silver (which may be expected to increase materially with the passage of time) may later be put into circulation through coinage or through the medium of silver certificates.

Subsidiary Coins. Subsidiary coins are issued by the government because of the need for coins smaller than a dollar in a host of everyday transactions. Silver is used for the coins of larger values, such as the half-dollar, quarter-dollar, and dime. Its use in coins of lesser value than the dime would result in pieces of money so small as to be extremely inconvenient. Consequently, the five-cent piece and cent (which are often called "minor coins" or "tokens") are made chiefly of copper.

Like the silver dollar, subsidiary coins are much less valuable as bullion than as money, and consequently are not standard money.

Gold and Silver Certificates. Gold certificates bear a close relationship to gold coin and bullion, and silver certificates to standard silver dollars, since they are issues of paper money certifying the actual deposit of the gold or silver, as the case may be, with the Treasurer of the United States. The *gold certificates* are rather closely held by the Treasury and Federal Reserve banks, and of the total of some $21\frac{1}{2}$ billion dollars' worth in existence only about 47 millions are "at large." Even these are not actually in circulation, but probably have been destroyed, mislaid, or are in the possession of those who do not know, or have disregarded, their legal obligation to turn these certificates over to the United States Treasury in exchange for other money. Prior to 1933, gold certificates were redeemable in gold upon demand, but they can now be redeemed only by Federal Reserve banks at the discretion of the Secretary of the Treasury. Furthermore, they are redeemable only "for uses authorized by law."

Silver certificates are allowed to circulate much more freely. About 9 per cent of all silver certificates are held by Federal Reserve banks,

the other 91 per cent (or about 2 billion dollars' worth) being used in everyday business transactions. Moreover, they are readily redeemable at the Treasury in silver dollars.

United States Notes (Greenbacks). United States notes, which are better known as "greenbacks," are a government obligation that dates back to Civil War times. Issued in 1862, they had for a time a value of only 35 cents on the dollar. From 1879 to 1933 they were convertible into gold, and the Treasury maintained a fund of about 156 million dollars in gold for the redemption of these notes. Relatively few, however, were presented for redemption, and they circulated quite as freely as any other American money. The gold redemption fund referred to above is still intact, but is not being used for paying off these notes. However, United States notes are redeemable in lawful money at the Treasury. They are an interesting example of inconveritible paper money made convertible into gold, and later declared inconveritible.

Bank Notes. The several kinds of paper money that have been described up to this point are issued by the Treasury and are obligations of the United States government. Bank notes are also obligations of the government in the sense that their redemption in lawful money is guaranteed, but they are issued by national banks and Federal Reserve banks, and not by the government itself.

National bank notes are promises to pay to the bearer in "lawful money" the full face value of whatever notes a given bank puts into circulation. They have been issued by national banks which have deposited with the Treasurer of the United States registered government bonds of specified issues up to 100 per cent of the note issue, and in addition a redemption fund of lawful money amounting to 5 per cent of the par value of the notes issued. National bank notes are redeemable in lawful money at the Treasury or at the bank that issued them. Since August 1, 1935, they have been disappearing from circulation. As of that date, the Secretary of the Treasury called in the government bonds on the basis of which national bank notes were issued, and thus made it unprofitable for the banks to keep the notes in circulation. Several hundred million dollars' worth have since been redeemed, and yet on December 31, 1947—twelve years after the retirement of the bonds by the Treasury became effective—national bank notes to the amount of 103 million dollars were still outstanding. Presumably, this form of paper money will become progressively scarcer, and eventually will disappear entirely.

Federal Reserve bank notes differ slightly from national bank notes in their nature and conditions of issue. One difference lies in the fact that the note issues of Federal Reserve banks are not limited, as were those of national banks, to the amount of the issuing bank's capital. A second difference is that Federal Reserve bank notes may be issued not only on the basis of government bonds, but also with any direct obligations of the United States, or with approved commercial paper up to 90 per cent of its face value, as security. It was the intent of the Federal Reserve Act of 1913 that Federal Reserve bank notes should gradually replace national bank notes, the latter being retired from circulation. But this change has not taken place to any appreciable degree. The national bank notes are being replaced, rather, by Federal Reserve notes, which are issued on a different basis from Federal Reserve bank notes. At present, the total face value of Federal Reserve bank notes is about three times the total face value of national bank notes. Federal Reserve bank notes are redeemable in lawful money at the Treasury and at the Federal Reserve bank of issue.

Federal Reserve notes, despite their similarity in name to Federal Reserve bank notes, are issued on very different terms. They will be described in detail in a later chapter, but it may be mentioned here that prior to 1933 they were secured, up to 100 per cent of their issue, either by gold or by a combination of gold and commercial paper. In the latter case, it was required that at least 40 per cent of the total should be gold. Since the passage of the Emergency Banking Act in 1933, direct obligations of the United States may be substituted for eligible commercial paper if such substitution is approved by the Board of Governors of the Federal Reserve System, and gold certificates are now used as security in place of gold. Furthermore, the required percentage of gold certificates was reduced, as of June 12, 1945, from 40 to 25. Commercial paper, it should be added, consists of notes, drafts, and other paper obligations arising out of commercial transactions. These items also will be dealt with later. Federal Reserve notes are redeemable in lawful money at the Treasury or at any Federal Reserve bank. They comprise 85 per cent of all United States money actually in circulation—that is to say, outside the Treasury and the Federal Reserve banks.

Convertibility of Paper Money. We shall now examine several points of difference between representative, convertible, and inconvertible money, with illustrations drawn chiefly from monetary experience in the United States.

Representative money is a receipt for, and promise to return upon demand, a specified amount of metallic money that has been entrusted to a responsible public authority, by whom it is to be held until called for. Thus, United States silver certificates are receipts for, and claims upon, silver that has been deposited with the Treasurer of the United States.

Silver certificates have often been classified as convertible money, and rightly so up to 1933, since, though they were *directly* redeemable only in silver, they were *indirectly* convertible into gold. Now that gold redemption of paper money has been suspended, it is no longer correct to say that silver certificates are convertible. Another characteristic of silver certificates is that they are backed, dollar for dollar, by the actual silver in which they are redeemable. Moreover, they are used purely as substitutes for metallic money, and not (like bank notes) as devices for increasing the amount of currency in circulation. As we have already observed, they have the advantage of being more convenient in handling than the metal, and their use prevents wear and tear on the coins themselves.

Prior to the recall of gold from circulation in 1933, gold certificates and silver certificates were both representative money, since gold certificates were actually backed by and redeemable in gold at the Treasury. They still have a dollar-for-dollar backing in gold, but the gold for which they call is no longer obtainable upon demand. Consequently, gold certificates do not now rate as representative money, but come under the heading of inconvertible paper money.

Convertible Paper Money. The convertibility of paper money rests upon the maintenance of an adequate reserve which may be drawn upon if redemption is demanded, and upon legal provision that the money shall be redeemed upon demand to the proper authorities. All of the paper money in use in recent years in the United States was, up to 1933, convertible into gold, either directly or indirectly. But so ample were the reserves from which redemption could be made that there was seldom an extensive demand for standard money in exchange for paper; for, strangely enough, the redemption of paper money is seldom desired unless there is fear that redemption, if requested, will be refused.

It was this fear which, in the great depression following 1929, gave rise to such unprecedented demands for gold in place of paper money that the privilege of redemption in gold was withdrawn in 1933. The metallic backing of our paper money, while more than adequate to

meet the demands of normal times, has never of course been sufficient to permit the redemption, in gold or silver, of all paper money outstanding. The payment of gold and silver certificates was fully assured by the maintenance of a 100 per cent deposit. Gold to the amount of 43 per cent was held as a reserve against the outstanding United States notes, or greenbacks. National bank notes and Federal Reserve bank notes had a monetary backing of only 5 per cent, which might or might not be gold. And the metallic security of Federal Reserve notes was usually only a 40 per cent deposit of gold. *In the final analysis, convertibility means redemption in gold if gold is demanded.* But we have not had a sufficient stock of gold to permit the redemption of all kinds of money which the government promised to redeem in gold. It is apparent, therefore, that in the face of a growing demand for redemption the only way to prevent a collapse of the monetary system was to withdraw, at least temporarily, the privilege of converting paper money into gold, the standard money of the United States.

Inconvertible Paper Money. Inconvertible paper money is currency which has no value in itself and is not redeemable in standard coin, but circulates only by authority of government. Inconvertible money (or "fiat money," as it is often called) is usually made legal tender; this fact and the confidence that people have in the promises of their government are sufficient explanation of the acceptability of a money that cannot be redeemed in coin or bullion.

Fiat money is most often issued in time of great emergency, such as war, when the printing of money appears to be the easiest way (and sometimes, indeed, the only way) to secure funds with which to meet necessary expenses. The Civil War was responsible for the issuance of greenbacks, and World War I brought upon European countries a veritable deluge of fiat money. Inconvertible money sometimes becomes convertible, as was the case with the greenbacks after an interval of seventeen years. But Russia, Germany, and Austria printed paper money in such enormous quantities to meet war and post-war needs, that redemption was out of the question and the notes were repudiated. France, facing a problem that was similar but not so serious, chose to "stabilize" the franc at a fraction of its former gold value. But this, in effect, was repudiation of a large part of the obligation represented by the paper money outstanding.

A serious difficulty with fiat money is the grave likelihood of over-issue, once the practice of printing this kind of money is resorted to.

And when sufficient fiat money has been issued to serve as exchange media for all business transactions, fiat money alone will be used. Since it is customary to endow such money with the power of legal tender, it will theoretically circulate on a par with gold. But gold may be called in by the government. And even if it is allowed to remain in circulation, gold will not, in actual practice, be employed at all if an abundance of convertible paper money is available. On the contrary, as we shall see shortly in our examination of Gresham's Law, it will disappear from circulation, part of it being used in foreign trade, where its purchasing power is greater than at home; part being made into articles of utility or ornament; and part being stored away against the time when it can again be used to advantage in domestic trade.

Since 1933, the paper money of the United States has been inconvertible paper money, for in that year it ceased to be redeemable in gold, our standard money. The fact that silver certificates may be redeemed in silver dollars does not alter the situation, for the terms "convertibility" and "inconvertibility" relate only to standard money, and silver dollars do not qualify as standard money since their value as money is much greater than their value as bullion.

"Total Money" and "Money in Circulation." Some kinds of money circulate freely, while other kinds do not. The total amount of money of the United States, on December 31, 1947, was distributed as follows:

Money held in the Treasury.....	\$20,018,235,509 ²
Money held by Federal Reserve banks and agents.....	4,135,866,851
Money in circulation.....	28,867,631,567
Total money in the United States.....	\$53,021,733,927

These figures make it clear that only about 55 per cent of the money of the United States is being used *directly* in carrying on business transactions. But this does not mean that the rest of the money is idle. Gold and gold certificates, when held in a Federal Reserve bank, permit the issuance of far more purchasing power (in the form of Federal Reserve notes or bank credit) than if they were used directly for buying goods. By using much of our money as *reserves*, instead of keeping all of it in actual circulation, we are

² To avoid duplication, we have reduced this figure for gold and silver bullion actually held in the Treasury, deducting an amount equal to the total of gold and silver certificates *outside* the Treasury. Obviously, we should be guilty of double-counting if we included both the bullion and the certificates.

enabled to increase greatly the funds available for conducting economic operations, as we shall see in a later chapter.

THE NATURE OF MONEY

With this picture of the kinds of United States money as a background, we proceed to a consideration of the character of money and its use in present-day economic life.

Attributes of a Satisfactory Money. Money may be defined as *anything that serves as a standard of values, or is generally acceptable and is used primarily as a medium of exchange*. The traditional definition of money—"anything that serves both as a standard of values *and* a medium of exchange"—has not applied to United States money since April 5, 1933. For gold has not been allowed to circulate in this country since that date, and is therefore no longer a medium of exchange, though it still serves as a nominal standard of values. Hence, we have modified the traditional definition of money to meet the needs of the American situation. Gold still qualifies as money because it serves as a standard of values; and other kinds of money fall within the limits of the definition because they are generally acceptable and are used primarily as a medium of exchange. *Acceptability* is the prime essential of a good money, and this quality depends, in turn, upon a number of other attributes, namely, portability, durability, uniformity, divisibility, cognizability, and stability of value.

Many commodities have been used as money in the past, but have been discarded for this purpose because they failed to possess one or more of these attributes. Tobacco, which was quite generally used as money in colonial Virginia, was too bulky and heavy to be readily portable; and it also lacked stability of value, for its purchasing power depended upon the size of the total crop, and this varied greatly from year to year. Cattle and sheep, though used by pastoral tribes, are not easily divisible, nor are they at all uniform. They could not, therefore, be used in small transactions, and values could not be expressed accurately in terms of these animals because of differences in size, weight, and quality. Corn and wheat have served as money at times, but are unsuitable for several reasons, one being the absence of durability, since grains are subject to deterioration. Precious stones also have been used, but they are deficient in cognizability; that is to say, it requires an expert to tell whether they are genuine or spurious.

The influence of these attributes upon the acceptability of money

should be fairly obvious. If a commodity is easily carried about (portability), if it gives promise of lasting for a long time (durability), if a unit is like every other similar unit in value (uniformity), if the standard unit is separable into smaller units for use in minor transactions (divisibility), if every unit is marked so that its genuineness and value are apparent to the average person (cognizability), and if its purchasing power does not fluctuate greatly from time to time (stability of value), then—but not until then—does it become *generally acceptable* and meet the needs of a satisfactory medium of exchange.

Gold, Silver, and Paper Money. Because the articles we have mentioned above, and many others that have been used in the past, are deficient in the qualities required of a satisfactory money, their place has been taken in most important countries by gold and silver, and by paper based upon these precious metals. Gold and silver possess, to a high degree, the characteristics that are desirable in money. Of the two, gold has an advantage over silver because of its higher value in relation to bulk and weight.

Gold, combining high value with slight bulk, satisfies the requirements of portability. It does not deteriorate with the passage of time, nor does it wear away rapidly through handling if it is hardened by the addition of an alloy. It presents no difficulties so far as uniformity is concerned. Though gold is readily divisible, its great value per unit of weight makes it unsuitable for small coins, so that silver, copper, and other metals are commonly used for making units of small denominations. When coined by a responsible government, gold is generally recognizable. It varies considerably in value from time to time, but is more stable than most commodities. Silver possesses these same qualities, though most of them to a lesser degree than gold; and one or the other of these two metals forms the nominal basis of every important monetary system of modern times.

The Question of Acceptability. Our definition includes paper as well as metallic money, if only it is generally acceptable. Paper currency is very extensively used, and passes from hand to hand as freely as gold and silver, whenever there is confidence on the part of the receiver that he will experience no difficulty in passing it on to someone else, at full face value, in exchange for economic goods. But checks, drafts, and certain other negotiable papers do not fall within the definition, largely because they lack cognizability. Even a check signed by a multimillionaire would not be *generally acceptable* be-

cause the average person could not be certain that the signature was genuine and not a forgery. In like manner, a personal note (or "promise to pay") is not money, since many persons would decline to accept it on the ground that it might not be paid when due.

Legal Tender and Lawful Money. Legal tender is money that, by legal declaration, must be accepted by a creditor in payment of debt, in the absence of an agreement to the contrary. The power of legal tender is conferred upon certain specified forms of money for the purpose of facilitating the settlement of obligations. A refusal to accept legal tender in settlement of an obligation does not mean that the debt is canceled, but simply that the debtor need not pay interest accruing after the date on which payment in legal tender was preferred. The power of legal tender adds to the acceptability of money, since the person receiving it knows that it can be passed on to others in payment of obligations outstanding.

Prior to 1933, the question of legal tender in the United States was a complicated one, for some forms of American money enjoyed full legal tender whereas others were legal tender only for certain purposes or in limited quantities. In actual practice, however, there has been no real difficulty, since every form of our currency has been readily convertible into any other form that might be desired. But even the academic perplexities of the situation have now been cleared away, for by joint resolution of Congress on May 26, 1933, "all coins and currencies of the United States (including Federal Reserve notes and circulating notes of Federal Reserve banks and national banking associations) heretofore or hereafter coined or issued" were declared full legal tender for all debts, public and private.

The term "lawful money" is one which we have used in the present chapter, and which is in common use in monetary discussion. It requires no explanation other than the statement that lawful money is synonymous with legal tender, in so far as United States money is concerned. The two terms may therefore be used interchangeably.

Coinage. The coinage of metallic money and the printing or engraving of paper currency are almost invariably carried on either as a government monopoly or under strict governmental control. This, again, is an arrangement that contributes definitely to the acceptability of money, since it guarantees the use of metals of uniform fineness, units of standard weight, and therefore coins that will be received without hesitancy by the general populace. Coins of

a given value are of uniform appearance and are easily recognized. They are struck from excellent dies in such manner as to render counterfeiting difficult. Not only are they stamped on both sides, but the edges of the more valuable coins are usually sharply "milled," as a precautionary measure against impairment of metal content by shaving or clipping. In the manufacture of paper money, fraud is discouraged by the use of special paper on which are printed or engraved intricate designs which cannot easily be reproduced by private individuals.

Policies on coinage differ with different countries. Occasionally a government aims to make a profit on the manufacture of money by charging more than enough to cover the costs of coinage; this is called *seigniorage*. More often a charge known as *brassage* is made, this being an amount just sufficient to cover the costs involved. Or the system may be, as it was in the United States until 1933, one of *gratuitous coinage* of the standard metal. For in this country the holder of gold bullion could take it to the government mint, and there have it made into coin without charge except for the alloy which was mixed with the pure gold to give it the proper degree of hardness. Moreover, he was able to have it coined in *unlimited quantities*. This latter feature is known as the "free coinage" of gold.

But gold coin is no longer a part of our monetary system, and so we have no coinage of our standard metal. Gold may now be monetized only through its purchase by the Treasury, the seller receiving not gold coin, as was his privilege in the past, but some form of paper money in exchange for the bullion. Silver has not for many decades been "freely" coined in this country; that is, it has not been coined (as was gold prior to 1933) upon the simple request of the holder of bullion. When there has been need for more silver coins, they have been stamped from silver bullion purchased by the government for that purpose.

THE FUNCTIONS OF MONEY

Medium of Exchange. The primary function of money, as was indicated in our definition, is to act as a medium of exchange. When an economic society gets beyond the stage of barter, in which producers trade their surplus goods directly for goods of various kinds produced in surplus by others, the need for a satisfactory medium of exchange is apparent. Money, because it possesses the several attributes we have enumerated, is such a medium. Being easily ex-

changeable for commodities which one wishes to secure, it is readily accepted in return for goods that one may hold in excess and may therefore wish to sell. Exchange is greatly facilitated through the agency of money, for its use permits the employment of middlemen, who, though not desiring to consume certain goods themselves, are yet willing to purchase them (giving money in return) and later sell them (receiving money in return). In this manner, a producer is enabled, indirectly but conveniently, to deliver his product to the consumer. Through the instrumentality of money, moreover, services may be exchanged just as readily as material goods.

We have noted the fact that gold has ceased to function in the United States as a medium of exchange. The monetary gold stock of this country is held in the United States Treasury, and paper money is circulated in its stead. An arrangement of this kind is satisfactory as long as public confidence in the paper money can be sustained, and this is largely a matter of keeping the amount of money issued down to a quantity that will not raise general prices unduly. But the general acceptability of paper money does not ordinarily extend beyond the boundaries of the country of issue. Consequently, the settlement of balances arising through international trade (a subject which will be treated in a later chapter) is made in gold on the basis of weight.

Standard of Values. Money serves also as a standard of values, which is merely another way of saying that it provides us with a common denominator in terms of which economic goods may be expressed and their importance in exchange easily compared. The convenience of reducing all commodities and services to this common unit is very great. If a garden hoe exchanges for two pounds of butter, it is possible, of course, to express the value of hoes in terms of butter and the value of butter in terms of hoes. But it is more convenient to express both in terms of dollars, saying, for example, that a hoe is worth a dollar and a pound of butter is worth fifty cents. Once the standard is well established and universally understood, values are automatically reduced to its terms. Thus the statement that hoes are selling at one dollar each, and butter at fifty cents (or a half-dollar) a pound, is instantly and completely comprehensible to any person accustomed to our monetary system. The use of a standard unit (such as the dollar) makes it easy to compare the values of goods to be bought and sold.

Just because money functions as a standard of values, it does not

follow that it possesses stability of value. Indeed, we have already noted its deficiency in this respect; but this is a shortcoming in which all commodities share, and some to a far greater degree than gold. Money is not, then, an unvarying standard of measurement such as the pound, foot, and bushel (which remain constant from year to year), but simply, as we have said, a common denominator in terms of which one may conveniently compare the values of different articles at a given time.

However, the establishment of a monetary standard, such as the dollar, does fix definitely the relative values of the several kinds of money included in the system. A fifty-cent piece, for instance, is always a half-dollar, even though its value as bullion is less than that of $7\frac{13}{21}$ grains of gold nine-tenths fine. And two half-dollars will continue to have as great purchasing power as a paper dollar of any issue, a silver dollar, or one hundred cents' worth of subsidiary coin of any kind, as long as each of the several forms of money in circulation is readily exchangeable for any other form, and all forms have the power of full legal tender.

Standard of Deferred Payments. Present-day exchange consists largely of giving commodities or services, not in return for other commodities or services, or even for money, but for promises to pay at some future date. It is estimated that more than 90 per cent of the business of the United States is conducted on the basis of credit. But when a credit transaction takes place, some definite provision is usually made for settlement in the future, and money is called upon to act as the standard of these deferred payments.

This means that an agreement is made to meet the obligation, at a specified future date, by paying in money the amount due. It is here that stability in value of money is especially desirable, since it is important that the amount of purchasing power delivered to the creditor when the obligation falls due should be the amount which, when the transaction took place, the debtor promised to deliver. Our study of price levels in a later chapter will show that, because money itself fluctuates in value, the purchasing power delivered on a deferred payment may be either greater or less than was implied in the contract, depending upon whether money has increased or decreased in value in the meantime. The fact remains, however, that money is the standard generally used; and it will continue to perform this function until the business world has been convinced of

the advantages of one or other of several new standards that have been proposed for the purpose.

Basis of Credit. It is difficult to grasp the significance of money as a basis of credit without understanding the fundamentals of our system of banking, which will be described in Chapters 12 and 13. It may be said, however, that the adoption of a standard money, and its use as a reserve, permit the safe circulation of a volume of paper substitutes vastly greater than the original amount of standard money. We shall see, for example, that for every dollar's worth of gold certificates deposited as security with a Federal Reserve bank, there is the theoretical possibility of a reserve city member bank expanding credit to the extent of \$40.00. This element of elasticity is one which was not fully appreciated in this country prior to the adoption of our Federal Reserve System in 1914. It means, however, that as business expands, the volume of credit increases to meet its requirements, decreasing again when so much credit is no longer needed.

MONETARY SYSTEMS

Standard Money. Standard money, in the strict sense of the term, is money that contains the amount of metal necessary to make its value as bullion exactly equal to its value as money. If a country used nothing but standard money, there would never be any question about its acceptability so long as the standard metal was desired on its own account. For the coin could be converted into bullion by the simple process of melting, and the bullion, in turn, could be turned readily into money if a system of free coinage were in effect.

Measured by the above definition, gold bullion constitutes the only strictly standard money in this country. Silver dollars, though they were once standard and are still called by that name, are greatly underweight, and so also are all subsidiary coins. Paper money, despite its value in exchange, possesses almost no value as a commodity. The gold certificate, even though it is virtually a receipt for gold that is actually held in the Treasury, is at present inconvertible, and thus is as remote from being standard money as are the other kinds of paper money. Forms of United States money, other than gold bullion, may be called "credit money" since they represent promises to pay. This statement applies to short-weight metallic money (which includes all metallic money now in circulation) as well as to paper money.

Monometallism. For many years prior to 1933, the monetary standard of the United States was monometallic. Gold was the basis of our monetary system, and we were said to have a *gold standard*. The standard unit was the gold dollar, which was 25.8 grains of gold nine-tenths fine; there was free coinage of this metal; there was no prohibition on melting or exporting gold coin; the gold dollar was full legal tender; and all other kinds of United States money were convertible, directly or indirectly, into gold coin.

We shall presently describe the system that obtains in this country at the present time. The characteristics listed above are those which marked the monetary system of the United States while it was on a monometallic gold standard. Until quite recently monometallism has been a world-wide phenomenon, and in most countries of economic importance the standard metal has been gold.

Bimetallism. But most governments, before adopting monometallism, have had some experience with a bimetallic standard. Under bimetallism, two metals—usually gold and silver—are coined upon presentation at the mint and in unlimited quantities, and both are full legal tender. As in the case of monometallism, there is no prohibition on melting or exportation. In setting up a system of bimetallism, it is necessary to decide upon a *mint ratio* to express the relative values of the two metals when used as money. The ratio adopted is naturally one that conforms very closely to the *market ratio*, which expresses the terms on which the metals exchange as bullion. If one ounce of gold, as metal, commands sixteen ounces of silver bullion in exchange, the market ratio is 16 to 1, and the same figures would ordinarily be chosen at the outset for the mint ratio.

So far, so good. And if the market ratio remained constant indefinitely, or the mint ratio could be manipulated so as to duplicate changes in market value, all would be well. But the market values of gold and silver, as of all commodities, depend upon the general conditions of supply and demand. Since both are constantly being mined, but in varying quantities, and since the demand for the metals is likewise subject to variation, their market values are constantly changing. In the year 1500 the market price of gold was about eleven times that of silver, so that the market ratio between silver and gold was 11 to 1; in 1850 it was about 15½ to 1; in 1900, 34 to 1;³ and in 1947 approximately 50 to 1. This 1947 ratio of 50

³ Cf. W. H. Steiner, *Money and Banking*, New York, Henry Holt & Company, Inc., 1933, p. 81.

to 1 was arrived at, of course, by comparing the prices per ounce of gold and silver, and these prices were, respectively, \$35 and 70 cents.⁴ The market ratio, then, lacks stability. Nor is it feasible to change the mint ratio frequently so that it will conform to the market ratio. For this would mean, among other difficulties, the circulation of coins alike in face value and yet different in their metallic content.

Overvalued and Undervalued Money. Because of the variability of the market ratio and the fixity of the mint ratio, it is next to impossible to maintain a bimetallic standard over a long period of time. If, under a *monometallic gold standard*, an exceptionally large amount of silver were mined in 1948, the 1947 market ratio of 50 to 1 might be expected to change to (say) 51 to 1. This would represent a fall in the value of silver, attributable to the substantial increase in the quantity available. But if a *bimetallic standard* were in force (with both *market* and *mint* ratios of 50 to 1 in 1947), this increase in the quantity of silver mined in 1948 would not lower its price, since the mint ratio, set by law, would presumably remain fixed at 50 to 1. Under these conditions, silver would be overvalued and gold undervalued at the mint—that is to say, silver would command a higher price at the mint than on the market, and would therefore be sold only at the mint. As a consequence, the *theoretical* market ratio of (say) 51 to 1—which, as we saw above, would prevail in the presence of a monometallic gold standard—would be non-operative as long as silver could be disposed of more advantageously at the mint than on the market. Silver would tend to flow into the mint and gold to flow out, and these movements of silver and gold would likely continue until all the gold had been drained from the mint and only silver remained to serve as money; whereupon the market ratio would become operative and the mint ratio non-operative. The gold coins that had left the mint might be melted down and sold as bullion, be exported to other countries where they had greater pur-

⁴ Under Presidential decree of April 24, 1935, the price of silver eligible for Treasury purchase, consisting of *newly mined American silver*, was made 77.57 cents an ounce. On December 31, 1937, this price was reduced to 64.64; on July 6, 1939, it was set by law at 71.11 cents for domestic silver mined after July 1, 1939; and on July 2, 1946, the price was again raised, this time to 90.5 cents an ounce. At the artificially high price the government is now paying for newly mined domestic silver, the bullion that goes into a dollar costs about 70 cents, but melted down and sold in the silver bullion market it would bring only about 54 cents.

chasing power than at home, or possibly be hoarded in the hope that their exchange value would later increase.

If, on the other hand, gold were mined in unusually large quantities, the situation would be reversed. Gold bullion would then be brought to the mint, silver would flow out and disappear from circulation, and gold money only would be used for purposes of domestic exchange.

Gresham's Law. This tendency for money that is overvalued *at the mint* to drive out of circulation money that is undervalued, is known as Gresham's Law. The law is effective only when there are free and unlimited coinage of both metals, free melting and exporting, and full legal tender of both gold and silver. Moreover, the quantity of the overvalued money must be sufficient to meet the needs of business transactions; otherwise the two may circulate side by side.

There are many illustrations of the operation of Gresham's Law. An example which illustrates that the law is applicable to paper money, as well as to gold and silver, is to be found in the circulation of greenbacks during and following the Civil War. From 1862 to 1879 these notes were not redeemable in gold. Though they had been declared legal tender, greenbacks were generally regarded as distinctly inferior to silver and gold. Persons having in their possession both metallic money and greenbacks held fast to the metal and paid in paper. Since sufficient greenbacks had been issued to carry on business operations, gold and silver were withheld from circulation and paper money was used almost exclusively. Inferior money had driven superior money out of circulation.

Gold and Silver Purchase Plans. Returning to the monetary system of the United States, we may note once more the extensive purchase of gold and silver bullion, begun by the government during the post-1929 depression.

Acting on authority given him under the Gold Reserve Act of 1934, President Roosevelt promptly reduced the gold content of the dollar, established a price of \$35 an ounce for gold, and ordered the Secretary of the Treasury to purchase gold bullion both in this country and abroad. Presumably, the purpose was to raise general prices in the United States to approximately their level in 1926, since it was thought that most of the business contracts outstanding were made when prices were at about the 1926 level and that a

return to that level would aid in bringing about business recovery.⁵ It may fairly be questioned that the gold purchase plan raised prices as much as its sponsors had expected, but there can be no doubt that it brought an influx of gold bullion to the Treasury. The total value of monetary gold in the United States was five times as great in 1942 as in 1932. This ten-year increase resulted partly from the greater value of gold (as expressed in terms of a dollar which contained fewer grains of gold than formerly), but it was attributable chiefly to large purchases of gold, both domestic and foreign, by the government.

In like manner, the Silver Purchase Act of 1934 added to our stock of metallic money. This act declared it to be the policy of the United States to increase the stock of monetary silver until its value is one-fourth that of the total monetary stock of this country, the other three-fourths consisting of gold. The Secretary of the Treasury was authorized to buy silver until this proportion of one to three has been attained. It was estimated that it would require the purchase of about one and one-third billion ounces of silver to bring about the proportion of gold and silver aimed at by the Silver Purchase Act. Since silver mines in the United States had been producing some 25 million ounces of silver a year, this proposed change in our monetary stock was expected to provide a market for all silver mined in this country for two decades. This silver may be coined into silver dollars, or may be put into circulation through the issuance of silver certificates. In either event, the Silver Purchase Plan, if carried through to its stated conclusion, will add materially to the monetary stock of the United States. It has already increased the total amount of United States money by more than a billion dollars. Of course, every purchase of gold (under the Gold Reserve Act) requires an additional purchase of silver (under the Silver Purchase Act), if the proposed proportions of three to one are to be reached.

The present bullion content of the silver dollar (which the President of the United States has authority to lower) is 412.5 grains of silver nine-tenths fine, so that one ounce of silver makes \$1.29 worth of silver coin. Since the present Treasury purchase price for newly mined American silver is 90½ cents an ounce, it will be seen that

⁵ The part that an increase in gold may play in raising the price level is explained in chap. 14.

every time the government buys an ounce of silver and turns it into coin, it makes a "profit" of approximately 38½ cents.

The Managed, Inconvertible Gold Currency System of the United States. The recent changes in monetary practice in this country make it necessary to find a new term by which to designate the present currency system of the United States. Clearly, the old title—"the gold standard"—is no longer applicable, since one of its essential features—the power to redeem all forms of credit money in gold upon demand—has disappeared. Probably we can do no better than to call our present arrangement a "managed, inconvertible gold currency system."⁶

It is a *gold* system, since our standard unit, the dollar, is still defined in terms of gold, and the security back of our money consists in large part of a stock of gold bullion. However, "gold is relegated to a distinctly nominal rôle. . . . The commodity gold, consequently, may be said to function as an inspirer of confidence in money on the part of the public."⁷ Furthermore, we have an *inconvertible* system, inasmuch as none of our money in actual circulation is redeemable in the standard money, gold. Finally, the system is *managed*; that is, the quantity of money is not allowed to adjust itself on the basis of the presentation or withdrawal of gold at the mint and the issuance of bank notes of various kinds, but is presumably being managed by a central authority (the President of the United States) in an attempt to adjust the price level in such a way as to bring about the full use of the country's productive resources.⁸

Money is anything that serves as a standard of values, or is generally acceptable and is used primarily as a medium of exchange.

Standard money is money that contains the amount of metal necessary to make its value as bullion exactly equal to its value as money.

A *United States dollar* is 15 5/21 grains of gold nine-tenths fine.

Free coinage is the coinage of bullion in unlimited quantities

⁶ This is the term adopted by Professor Ralph A. Young in *The New Monetary System of the United States*, New York, National Industrial Conference Board, Inc., 1934.

⁷ *Ibid.*, p. 29.

⁸ Cf. *ibid.*, p. 29.

(though not necessarily without charge) upon presentation at the mint.

Legal tender is money which by legal declaration must be accepted by a creditor in payment of debt, in the absence of an agreement to the contrary.

Gresham's Law: Money that is overvalued *at the mint* tends to drive out of circulation money that is undervalued.

1. Name the different kinds of paper money in the United States. The different kinds of metallic money.
2. What is a "dollar"?
3. What do we mean by "standard money"?
4. In view of our definition of "standard money," why do we sometimes refer to "standard silver dollars"? Explain the seeming contradiction.
5. In what way do gold and silver certificates differ from other kinds of paper money?
6. What is representative money? Illustrate.
7. What is convertible money? How is its convertibility maintained?
8. Define "inconvertible money," and give illustrations of its use in the United States and elsewhere.
9. Give a synonym for inconvertible money.
10. Why is the use of inconvertible money generally regarded as objectionable? Illustrate.
11. Why, since the use of inconvertible money often results disastrously, do nations ever permit its use?
12. What proportion of the total money of the United States is "money in circulation"? Explain.
13. Define "money."
14. Name and describe the attributes of a satisfactory money.
15. What is the relationship between "acceptability" and the other attributes of money?
16. Is a personal check "money"? Explain.
17. How does money become "legal tender"? How is legal tender related to acceptability?
18. Why is it desirable that coinage be conducted under strict governmental control?
19. What is the meaning of free coinage? Of gratuitous coinage?
20. Four functions of money are described in the text. State these functions, with a short explanation of each.
21. Why does money fail to perform perfectly its functions as a standard of values and a standard of deferred payments?
22. Distinguish between monometallism and bimetallism.
23. Why is it difficult to maintain a bimetallic standard?
24. State and explain Gresham's Law.
25. Discuss the Gold and Silver Purchase Plans.

26. What kind of monetary system has the United States at the present time? Explain.

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12. Investment and Commercial Banking

One of the functions of money, as we saw in the last chapter, is to serve as a medium of exchange. Not only standard money but credit money (underweight coins and paper money) is useful in the performance of this function. But money, whether standard or credit, plays only a small part in the actual business transfers of the country, when compared with such credit instruments as checks and drafts. Gold, when used as a reserve against other kinds of circulating media, is a more vital factor in the business world than it could possibly be as an active medium of exchange. For its use in this way permits the circulation of a vast quantity of credit which is constantly employed in furthering business activities. It is a fair estimate to say that fully 90 per cent of our business operations are carried on through the use of substitutes for money. The check is, in present-day business, the most important of money substitutes.

Two Important Types of Credit. The need for credit arises largely from the fact that production is carried on in anticipation of demand. This means that many of the costs of production must be borne for some time before any return is realized by the sale of the product. If a silk loom is about to be discarded, then the part contributed by this loom to the last yard of cloth that is woven is a cost of production which was met perhaps some twenty years before the sale of the silk cloth. The ability to conduct an enterprise and the possession of a large amount of money do not always go together. Frequently, then, enterprisers are obliged to put their ideas to work, not with their own resources but with the aid of borrowed funds.

Let us consider, by way of illustration, the case of an energetic young man of business ability, with confidence in the future of television, but with no money of his own. Obviously, he must secure

credit if he is to go into the business of manufacturing television receiving sets. The purchase or lease of land, the construction of a factory building, and the purchase of machines and tools require funds in considerable amounts. Moreover, these funds will be tied up for a long period of years, being invested in plant and equipment designed for a particular purpose. What our would-be enterpriser needs is *investment credit*; that is, *long-term* loans, amounting to *large sums*, to be put into *fixed capital*. Such loans are usually secured through the issuance of bonds and shares of stock.

Even after the business is well established and is operating on a profitable basis, there may be times when this enterpriser will need additional funds for short periods of time. There are certain running expenses that must be met promptly, raw materials to be purchased, wages to be paid. And even though the books show a handsome profit, funds may be tied up temporarily in the form of goods manufactured and on hand, or television sets sold to wholesalers but not yet paid for. However, the running expenses of the company must be met, and without delay, so that an appeal is made for *commercial credit*, which consists of *short-term* loans, for relatively *small amounts*, to supply *circulating capital*.

SOME IMPORTANT CREDIT INSTRUMENTS

Book Accounts. Our suggestion that some of the television sets that were sold had not yet been paid for indicates that this enterpriser is extending credit to his customers, probably through book accounts. There is little credit mechanism involved in the process. Let us suppose that, in order to dispose of a substantial number of receiving sets held in stock, the enterpriser agrees to deliver one hundred sets to a wholesaler, waiting sixty days for payment or allowing 2 per cent discount for cash in ten days. This transaction now stands as an "account receivable" on the books of the seller and an "account payable" on the books of the buyer, to be canceled as soon as payment has been made.

Promissory Notes. A transaction of this kind might be handled through the use of a promissory note, which is illustrated in Fig. 7. This is an agreement to pay, "for value received," a stated amount of money "on demand" or at a specified time. When properly indorsed, a note becomes "negotiable"—that is, it may be bought and sold. The payee of a note (the person who is to receive payment) is likely immediately to indorse it (by signing his name on the back)

and have it discounted at his bank. The process of discounting consists of the bank deducting in advance the interest charge for the period of time indicated in the note, and placing the remainder to the credit of the payee. The payee is then in a position to write checks against his account with the bank, to the full amount of this credit. An indorsement on a promissory note or check makes the indorser responsible for its payment in case the drawer of the instrument fails to make good his obligation.

\$ 60,000 <u>xx</u> <u>100</u>	New York, N. Y., October 1, 1947
Sixty days	after date we promise to pay to
the order of Johnson Airplane Company	
Sixty thousand	<u>xx</u> Dollars 100
at THE NATIONAL CITY BANK OF NEW YORK	
WITHOUT DEFALCATION VALUE RECEIVED	New York-Jacksonville Transit Corporation by J. B. James, President.

FIG. 7. A PROMISSORY NOTE.

Drafts, Bills of Exchange, Trade Acceptances. The *draft* is a very common device used in extending credit. This instrument appears under several names, such as *bill of exchange*, *trade acceptance*, and so on. The method of using the draft, also, is not entirely standardized. Sometimes the draft is accompanied by a bill of lading, warehouse receipt, or other claim upon property; sometimes, again, it travels alone. At times, the transaction is handled through a *bank draft*, which is an order drawn by one bank on another. In all cases, however, the general principle is the same. A draft is an order written by one person to another, asking that a specified amount of money be paid to a third person, sometimes (though not always) on a stated date. It follows that the familiar bank check is a form of draft.

A business transaction may give rise to the type of credit instrument shown in Fig. 8. This is a trade acceptance, a form of the draft, and as here drawn it orders the New York-Jacksonville Transit Corporation to pay to the Johnson Airplane Company, in sixty days, the sum of \$60,000. This trade acceptance, or draft, is forwarded to the Transit Corporation, and the Corporation "accepts" it by writing

across the face of the instrument the word "Accepted," the date, the name of the bank at which it will be paid, and finally the signature of a responsible official. Not only trade acceptances but drafts in general are "accepted" in this way.

Thus indorsed, the trade acceptance is negotiable, and may be readily discounted. The statement that "the transaction which gives rise to this instrument is the purchase of goods by the acceptor from

TRADE ACCEPTANCE Standard Form Approved By AMERICAN ACCEPTANCE COUNCIL New York	<p>No. <u>453</u> <u>New York</u> Oct 1, 1947 (City of Drawer) (Date)</p> <p>On <u>November 30, 1942</u> Pay to the order of ourselves (Date of Maturity)</p> <p><u>Sixty Thousand</u> Dollars (\$<u>60,000</u>)</p> <p>The transaction which gives rise to this instrument is the purchase of goods by the acceptor from the drawer. The drawer may accept this bill payable at any bank, banker or trust company in the United States which such drawee may designate.</p> <p>To <u>New York-Jacksonville Transit Johnson Airplane Co</u> (Name of Drawee) Corporation (Signature of Drawer)</p> <p><u>New York, N.Y.</u> (City of Drawee)</p> <p>By <u>William Johnson</u></p>
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FIG. 8. A TRADE ACCEPTANCE (one form of the draft).

the drawer" makes the paper acceptable at Federal Reserve banks. The Federal Reserve System is designed to aid only in financing legitimate short-term business operations; and the statement we have quoted is inserted as evidence that the proceeds of this trade acceptance have not been used for a permanent investment, nor yet for one of a purely speculative character.

A draft when accepted by the drawee (the person to whom it is addressed) becomes virtually a promissory note. If William Johnson, on behalf of the Johnson Airplane Company, discounts the trade acceptance shown in Fig. 8, he must himself indorse it and it thus becomes "double-name paper." This means that the amount advanced to the Johnson Airplane Company on the strength of this instrument will be charged back to the company if the New York-Jacksonville Transit Corporation does not make payment at the stated time.

INVESTMENT BANKING

An increase in population usually means an increase in economic machinery to supply the newcomers with commodities and services.

An increase in individual purchasing power, permitting the use, by those in the lower-income groups, of comforts or minor luxuries that have been denied them in the past, likewise leads to an expansion in productive facilities. Finally, every new invention of a practical nature—such as the automobile, air conditioning, or television—means the construction of buildings and equipment that will promptly place the new good in the hands of all who are able and willing to buy. Hence, in all economically progressive countries there is a continual demand for fresh supplies of fixed capital with which to increase the output of economic goods.

Funds to be expended for fixed capital may be, and sometimes are provided by the business enterprisers who use them; and, again, they may be procured by enterprisers directly from private individuals who are looking for investments which they expect to pay them a satisfactory return from year to year. But financing of this kind—directly from saver to enterpriser—is likely to be on a rather small scale, and to relate to the individual proprietorship or partnership form of business organization. Also, in instances of direct borrowing the enterpriser is usually personally acquainted with those who entrust their funds to him.

Investment Bankers. It is much more common, however, to handle loans for fixed capital through banking houses that make a specialty of dispensing credit for permanent investments. Because of the need for agencies of this kind in a rapidly growing industrial society, there have developed in the United States a number of investment banking concerns, whose job it is to gather together the savings of many individuals and place them at the disposal of the few who can use them to advantage in the conduct of business ventures. These investment banking houses collect a considerable part of the savings of society by offering for sale the stocks and bonds of concerns that are about to be launched, or of established concerns that can use to advantage additional quantities of fixed capital.

The "Selection" of Investments. The process of financing a large business undertaking is far from simple. For convenience in discussion, the process is often divided into three parts—selection, underwriting, and distribution. If a group of business men should need to secure many millions of dollars' worth of capital for a new industrial project—say, the manufacture of plastics or television receiving sets—or should they wish to expand the plant or equipment

of a going concern, they would be likely to open negotiations with a great investment banking house, such as J. P. Morgan and Company, or Kuhn, Loeb and Company, and request this financial concern to float an issue of stocks or bonds, or perhaps both. If the banking house had no intimate knowledge of the project in question, it would undoubtedly make a careful investigation of all pertinent facts before agreeing to finance the operation. Of prime importance is the salability of the new securities, for investment bankers are seldom interested in buying stock and bonds which they cannot readily dispose of. But of almost equal importance is the safety of the project under consideration; for an investment banking house is known by the securities it sells, and its reputation is safe only as long as its customers are pleased with their purchases. Hence there is need to ascertain that the business to be financed is entirely sound, and that its securities represent a safe as well as profitable investment.

Since the quantity of funds available in our economic society is not sufficient to finance all the undertakings in which business men would like to engage, it is obvious that some enterprisers will get the funds they want while others go without. And since much of our industrial financing today is done through the investment banking houses, it is equally obvious that our investment bankers exercise a large degree of control over production. In a very real sense, they hold the power of life and death over a large part of the productive activities of the economic world, since they are in a position to provide the funds a given concern needs and insure its operation, or to veto its appeal and thus seal its doom.

Of course, not all businesses are financed through investment banking houses, but most of the corporate securities are put on the market with their assistance. The significance of new issues of corporate stocks and bonds is indicated in Table 9, in which such issues are compared with total new issues of securities in the United States, not including those of the federal government.

Because capital funds are limited in quantity, the best interests of society require that what there are should be dispensed in such a way as to promote the most essential industries—that is, those which will contribute most to the welfare of society as a whole. But it is doubtful that this end can be attained so long as the distribution of investment credit is left in the hands of profit-seeking individuals. Investment bankers are probably, on the whole, neither better nor worse than any other group of business men. But they

certainly are not particularly well equipped, from the point of view of society's needs, to perform the function of granting or denying funds. They are trained in detecting money-making opportunities; and in deciding which economic undertakings are to be financed they are naturally attracted to those that give promise of paying large

TABLE 9. NEW CAPITAL FUNDS RAISED IN THE UNITED STATES, 1929-47

(Source: Board of Governors of the Federal Reserve System, *Banking and Monetary Statistics*, p. 487; *Federal Reserve Bulletin*, March, 1947, p. 302 and March, 1948, p. 314)

(In millions)

Year	Total New Security Issues ^a	Total New Corporate Security Issues	Year	Total New Security Issues	Total New Corporate Security Issues
1929	\$10,093	\$8,002	1939	\$2,277	\$ 383
1930	6,912	4,483	1940	1,951	736
1931	3,095	1,551	1941	2,854	1,062
1932	1,197	325	1942	1,075	624
1933	720	161	1943	642	374
1934	1,386	178	1944	913	646
1935	1,457	404	1945	1,772	1,264
1936	1,972	1,192	1946	4,635	3,556
1937	2,138	1,225	1947	7,448	4,715
1938	2,360	873			

^a Excludes refunding issues and direct issues of the United States government, but includes issues of foreign and domestic corporations, foreign governments, farm loan agencies, and states, municipalities, and territories.

returns. Thus, funds might be directed by profit-seeking bankers into the construction of palaces for multimillionaires, leaving none available for the building of low-cost housing for working people, even though the millionaires were already magnificently housed and the workers were living in slums.

"Underwriting" and "Distribution" of Securities. If, with all necessary information at hand, the investment banking house decides to undertake the task of providing the desired funds, it guarantees (or "underwrites") the sale of the necessary stocks or bonds, or both, within a specified time. The investment banker buys these securities from the company at a figure lower than the anticipated market price, so that he may reasonably expect to make a profit from their sale. Now comes the task of disposing of the securities. To this end, the investment house usually proceeds to form an

"underwriting syndicate," a temporary association made up of a number of other investment houses that are given an opportunity to join in the sale of the securities in question.

Each of the several underwriting concerns guarantees that certain amounts of the securities will actually be sold. The original banking house now offers these securities for sale to the public at, of course, a higher price than was paid for them. If the entire issue is sold without difficulty, each of the participating concerns is rewarded on the basis of the quantity that it individually underwrote, or guaranteed. If, on the other hand, some of the securities remain unsold after a specified time, they are divided among the underwriting houses in proportion to their guaranties, and are sold by each to investors on terms as advantageous as can be secured.

Underwriting, it will be seen, usually involves the principle of insurance, and is one of the many devices used in the business world for "spreading the risk." An investment house would usually rather have a one-twelfth interest in each of a dozen good securities, than complete responsibility in a single stock or bond that has been issued in huge quantities. Of course, an investment banking house *may* decide, in the case of a given security, not to seek outside guarantors but to be the sole underwriter of the issue.

Investment bankers are sometimes called "security merchants," the great banking houses that float issues of stocks and bonds being known as wholesalers and the smaller underwriting houses as retailers. The commercial banks also play an important part in the business of providing investment credit, since they lend extensively to investment banking houses, accepting as security for the payment of the loans the stocks or bonds that the underwriters have taken over from the Morgans, the Kuhn, Loebs, and other large issuing concerns.

Our organized security exchanges, such as the New York Stock Exchange and the New York Curb Exchange, are another agency in the distribution of securities. In the course of time, most important securities are listed on an exchange, and the exchange becomes a market place in which these securities are bought and sold. The promoters of an issue sometimes manipulate the market in such a way as to cause a gradual rise in the price. This is done by offering to buy the security at progressively higher prices day by day. Thus, a stock that is being manipulated by a "pool" of bankers who are interested in disposing of large numbers of shares might sell today

at \$30 a share, tomorrow at \$30.25, the next day at \$30.50, and so on. Certainly no shares will be sold by "outsiders" at less than the price offered by the pool, since holders of shares will naturally sell, if at all, at the highest price obtainable. As the price keeps rising, the general public, noting the steady increase and scenting big future profits, is drawn into the market and this new demand for shares aids materially in distributing the issue.

It should be noted that Sections 9 and 10 of the Securities Exchange Act of 1934 prohibit the manipulation of security prices, and provide fines and imprisonment for persons convicted of violating the act, and damages for those who have suffered losses at the hands of such violators. It is not yet clear how effective, in the long run, this legislation will be in remedying the evils of the situation. Certainly, its effectiveness will be lessened by the difficulty of detecting certain types of manipulation, and by the further fact that some kinds of activities which might morally be called manipulation do not legally fall under that heading.

Though not all securities issued through investment bankers are listed on the organized exchanges, the largest, most important issues are listed. At first, many of these stocks and bonds get largely into the hands of buyers who are speculatively inclined and are likely to sell out in a few weeks or months and pocket the gain to be realized through whatever price increase has taken place since the date of purchase. But once a stock or bond has become established as a dependable security paying a satisfactory return, it comes more and more extensively into the possession of investors, who buy primarily for the purpose of getting a steady income from their purchases.

Reinvested Earnings. Another important means of accumulating funds for the purchase of fixed capital is the reinvestment of part of the earnings of business concerns. It is now a very common practice for great corporations not to distribute to their stockholders in the form of cash dividends as much as has been earned in a given period, say a year. Not only does the successful business enterprise usually establish a surplus fund from which to meet deficits and pay dividends in unprofitable years, but a part of the profits of good years is often laid aside with the deliberate intention of using it for expanding the business—that is, for providing fixed capital. The growth of the Ford Motor Car Company from an original investment of only \$28,000 to one measured in hundreds of millions was accom-

plished wholly through the device of reinvested earnings, no new capital funds having been added to the business except those withheld year by year from the tremendous earnings of this company.

While additions to new capital from reinvested earnings are not so large as the additions made through the sale of stocks and bonds, they nevertheless form a very significant part of the capital accumulations of this country. Of course, earnings that are allocated to surplus add to the value of the business, and in the case of corporations are reflected in the enhanced value of the stock outstanding, provided no additional shares are issued. But boards of directors frequently issue stock dividends in lieu of cash dividends, and this action tends to hold down the selling price of the shares. On the other hand, it puts new shares in the hands of the old stockholders, who if they wish may convert their new holdings into cash by selling them to others. But whether the new shares are held or sold, the new capital funds which they represent are in the possession of the corporation. With the use of these funds, expansion may proceed without the delay and expense that might be entailed had the corporation attempted to secure these funds through the sale of stocks and bonds.

Control of the Sale of Securities. Those who have securities to sell are often more optimistic as to the future of their stocks and bonds than the situation warrants. Consequently, many of the securities sold to the public have turned out to be worthless. This failure of securities to live up to the representations of the sellers is by no means a new economic phenomenon. Indeed, it is as old as the corporation itself. The fleecing of the public through the sale of worthless securities has led to the adoption, by many of our states, of laws regulating the sale of securities and providing for the recovery of losses incurred by those to whom they have been sold in violation of law.

But the widespread purchase of stocks and bonds in the boom period preceding 1929, followed by the loss of some twenty-five billion dollars by the American purchasers of valueless securities, brought the question of investment frauds to a head. The result was the passage of a federal law, the Securities Act of 1933, which was amended in 1934. The purpose of this law is "to provide full and fair disclosure of the character of securities sold in interstate and foreign commerce and through the mails, and to prevent frauds in the sale thereof."

Without intending to interfere in any way with the enforcement of state legislation dealing with the sale of securities, the federal law is designed to insure that the buyer of stocks and bonds shall be fully informed as to the standing of the company in which he is investing. The issuer of a security must file with the Securities and Exchange Commission (a commission of five members appointed by the President of the United States) a registration statement which contains all information about the security that an investor needs to know. Until this statement has been filed, the security may not be sold or offered for sale through any agency of transportation or communication in interstate commerce or through the mails. Once the statement is filed, the seller must provide every buyer with a prospectus, which in reality is a summary of the information contained in the registration statement.

Should it develop that the registration statement or prospectus contains fraudulent statements, a person who has suffered loss through the purchase of the security may bring suit, within a period of three years, against officers of the issuing company or against the underwriters, and recover whatever damages can be shown to have resulted from a false statement or the omission of a material piece of information.

This legislation does not, of course, guarantee the buyer of securities against loss. What it does, in some measure at least, and what it was intended to do, is to protect him against misinformation and fraud. It is a measure, as the late President Roosevelt once said, which in the field of investment banking adds to the old dictum, "Let the buyer beware," a modern one—initiated and backed by the federal government—which is, "Let the seller beware."

Agencies for the Collection of Savings. By whom are industrial stocks and bonds purchased? Ultimately, of course, by the general public or by that portion of the public that earns more than it spends for consumptive purposes. But in most cases the savers of income do not invest it directly, but through an intermediate agency of one type or another. Commercial banks, savings banks, insurance companies, and endowed institutions of many kinds have funds to invest from time to time. Since these funds are not likely to be called for soon, or to any appreciable extent, they are largely available for long-term investment, provided the investment is safe.

Because many of these savings belong to persons of rather limited financial resources, there is special need for security; and certain

institutions, such as insurance companies and savings banks, are restricted in the uses to which their available funds may be put. Though the individual investment in insurance or in a savings account is frequently small, the total accumulation of this kind is great. Total time deposits in this country had reached, by September, 1947, the imposing total of 56 billion dollars, of which 21 billion were funds entrusted to mutual savings banks and the Postal Savings System.

It may be said, in conclusion, that approximately 15 per cent of the national income of the United States is saved every year. This means something like 20 to 25 billion dollars added to the total resources of the country in a "boom" year, and perhaps half as much in a year of moderate depression. A large part of these savings is used for permanent investment in fixed capital, and is handled through the investment banking process we have sketched.

COMMERCIAL BANKING

The Operation of a Commercial Bank. An examination of the statement of a commercial bank will provide background for our discussion of commercial banking in the United States. Table 10 is such a statement for a small-town bank.

TABLE 10. STATEMENT OF A SMALL NATIONAL BANK

<i>Assets</i>	<i>Liabilities</i>
Loans and discounts (1) \$ 621,190.28	Capital (6) \$ 125,000.00
United States bonds (2) 1,114,350.63	Surplus (7) 150,000.00
Other bonds and securities (3) 423,617.72	Undivided profits (8) 78,182.52
Real estate and fixtures (4) 101,640.17	Deposits (9) 2,269,022.53
Cash reserve (5) 361,406.25	_____ \$2,622,205.05
	\$2,622,205.05

We note, first, the banks' *liabilities*. The *capital* of the bank (Item 6) is the fund subscribed by its stockholders to enable it to start in business. The *surplus* (Item 7) consists of certain earnings that have been assigned permanently to the operation of the business. The *undivided profits* (Item 8) are gains which may later be transferred to surplus, or may, on the other hand, be distributed to the stockholders in the form of dividends. Items 6, 7, and 8 constitute a fund which (says the statement) "becomes the property of the stockholders after the debts to the depositors are paid, and is a guarantee fund upon which we solicit new deposits and retain those which have been lodged with us for many years." These three items

—capital, surplus, and undivided profits—are amounts *due the owners of the bank*. *Deposits* (Item 9) are amounts *due customers of the bank* who have left funds in the custody of the bank or to whom the bank has made advances against which these customers may write checks.

Since a commercial bank is a profit-seeking enterprise, its officers try to find investments for its funds that will pay a satisfactory return. The *assets* of the bank indicate the nature of these investments. *Loans and discounts* (Item 1) are sums lent to business men and others, usually on the basis of promissory notes or other "commercial paper," but sometimes on real estate or securities. *Government bonds* (Item 2) and *other bonds and securities* (Item 3) are investments to which commercial banks turn when more profitable business is not obtainable. Item 4, *real estate and fixtures*, covers the building, grounds, and equipment used in operating the bank. The *cash reserve* (Item 5) consists partly of legal reserves held by the Federal Reserve bank of the district in which the commercial bank is located, and partly of cash in the vault of the bank itself. The assets, it will be observed, are items which are *owned by the bank or owed to the bank by others*.

Chief Functions of a Commercial Bank. The banking functions which are peculiarly those of the commercial bank are (1) making loans and discounts, and (2) creating deposits for business concerns. In the operation of our economic system, business enterprisers continually find themselves in possession of certain types of purchasing power, or claims upon economic goods. These may take the form of commodities finished but unsold, or commodities sold but not paid for. By and by, through the process of exchange, these goods will be paid for; but in the meantime the smooth, efficient operation of business demands that further raw materials be purchased, wages be paid, and other regular expenses of business operation be met as they fall due.

In situations such as these, commercial banks may render a great service to business men. By means of short-term loans, these banks substitute purchasing power of wide acceptability (money, or deposits subject to check) for purchasing power of limited acceptability (goods, notes, or drafts) held by the business concerns. A concern presents a promissory note or other acceptable credit instrument at the bank, and is granted a "loan" (which means that the interest charge will be paid when the loan falls due) or a "discount"

(in which case the bank deducts the interest charge from the amount of the loan at the time it is made). In either event, the transaction is entered in the books of the bank as both an asset and a liability. It appears among "loans and discounts" as an asset—an item owed to the bank by its customer—and among "deposits" as a liability—an amount owed by the bank to its customer. With this deposit to its credit, the borrowing concern may proceed to write checks against it, though many banks require a borrower to maintain an unused balance of 10 to 25 per cent of his loan.

The ability to borrow in this way from commercial banks enables business men to purchase at once the commodities and services they must have, and later they pay off their obligations to the banks. From the point of view of the business men, loans are granted and credit is extended from time to time. From the point of view of society as a whole, a tremendous volume of credit is kept continually in circulation, and through the use of this credit the exchange of goods is facilitated.

To some present-day writers on banking, this description of the function of commercial banking might appear to be out of date and old-fashioned. It might be held that these short-term, self-liquidating loans based on actual business transactions have been playing a progressively smaller part in the business of commercial banks in recent years; while loans based on real estate, stocks and bonds, and similar investments have become increasingly important. It is true that commercial banks do engage, to a considerable extent, in other types of banking. Some have savings departments, and thus collect funds which are set to work in long-term investments. Many commercial banks are also trust companies and handle, among other things, trust funds which require relatively permanent investment. Moreover, until recent years, some commercial banks have engaged, either directly or through affiliated companies, in investment banking operations connected with the promotion and underwriting of security issues; and prior to August 1, 1935, the national banks of the United States issued money in the form of national bank notes. Nevertheless, the fact remains that the principal function of commercial banks, *as such*, has been and continues to be that of supplying short-term credit to business men.

The Credit-Currency Structure. We noted in the preceding chapter that about 29 billion dollars of United States money was actually in circulation on December 31, 1947. This is a substantial

sum, but the amazing growth of "deposit currency" (sometimes called "check currency") as a means of paying bills has forced money into a distinctly secondary position. Deposit currency consists of demand deposits created by commercial banks, and brought into circulation through the agency of bank checks. Demand deposits in this country totaled more than 87 billion dollars in December, 1947.

Demand Deposits (Deposit Currency). It is estimated by experts that this huge amount of deposit currency has a "turnover" of twenty-five to thirty times a year; that is to say, this sum is spent some twenty-five or thirty times in the course of a year. For although these deposits are being continually depleted by checks that are written against them, they are also being added to continually from several sources.

One of these, which is of relatively slight importance, is the deposit of money, checks, money orders, and claims upon cash, by means of which individuals and business concerns increase their balances, and against which they write their checks as occasion arises. Much more important are the deposits that arise through loans and discounts. When a bank lends to a business concern on the basis of commercial paper, such as a promissory note or trade acceptance, it pays the concern the amount due in one of two forms—either bank notes or a demand deposit. If notes are taken, the business firm uses them in paying bills and thus distributes bank credit in place of personal credit. If the bank simply credits the account of the concern with the amount due, there is again an exchange of bank credit for personal credit, since demand deposits are promises of banks to pay money on demand. And the business concern, paying bills with checks drawn against a demand deposit, again distributes the bank's implied promises to pay, in place of its own. It is chiefly through loans and discounts, and not through the deposit of money in a bank, that demand deposits arise. It is important to emphasize this point, since it is one that is often overlooked by students of economics.

Another point that must be stressed is the fact that commercial banks deal mainly in short-term obligations; and this is one reason why the fund of deposit currency is being continually replenished. When a bank creates a demand deposit by granting a loan or discount, it *may* be required to pay out money every time one of this customer's checks comes in for payment, though in many cases the person presenting the check will merely ask the bank to place the

amount to his credit so that *his* account may be increased. But in any case, the credit extended on commercial paper is ordinarily limited to a maximum period of ninety days, and at the end of that period the obligation must be paid by the borrower, unless the bank (if so requested) sees fit to renew the loan in whole or part. Since a bank handles thousands of transactions of this kind, its credit resources are in a state of constant flux, being in process of depletion through daily withdrawals, but being replenished all the while by daily deposits.

Bank Reserves. Bankers are sometimes tempted to allow the extension of credit to go beyond the point of safety, for with each new loan a profit is realized. It would be disastrous, however, for a bank to be unable to pay a legitimate claim that is presented against it, since failure of this kind would result in the bank closing its doors. Consequently, it has been the custom in this country to provide, by law, that reserves of a specified percentage must be held against demand and time deposits. In the case of state banks not members of the Federal Reserve System, the amount of the required reserve is regulated by state legislation and differs somewhat from state to state. The amount that for twenty years had to be held in reserve by banks belonging to the Federal Reserve System against demand deposits was 13 per cent for banks in New York and Chicago, 10 per cent for those in cities of medium size, and 7 per cent for small-town banks; the reserve required against time deposits—those which cannot be withdrawn without “notice” of a month being given—was 3 per cent in all cases. The reserves are deposited with the Federal Reserve bank of the district in which the member bank is located. (The Board of Governors of the Federal Reserve System, by authority of the Banking Act of 1935, has several times changed the reserve requirements against demand and time deposits. The latest change, which went into effect on October 3, 1942, made these reserves 20, 20, and 14 per cent for demand deposits, and 6 per cent for time deposits. Since other changes may be made from time to time, we shall use the older, well-established figures in many of our illustrations.)¹

These reserves may appear at first sight to be absurdly small; but

¹ Yet another modification, presumably temporary, went into effect on September 24, 1948, after the present revision of this book had been set into type. This change raised the reserves against demand deposits to 26, 22, and 16 per cent, and those against time deposits to 7½ per cent.

experience has shown that they are entirely adequate, for so long as confidence is maintained there is very little chance of depositors making a concerted demand upon the member banks for payment of the amounts due them. Furthermore, as our study of the Federal Reserve System will show, provision has been made for rendering first aid to any member bank that is threatened by a "run"—that is, by a demand for cash on the part of a large number of depositors.

The Clearing House. Let us suppose that the Johnson Airplane Company has drawn a check for \$50,000 on the Corn Exchange Bank Trust Company in favor of the United States Steel Corporation. If the Steel Corporation happens to have an account in this particular bank, it will in all probability simply indorse the check and deposit it. The bank thereupon debits the Johnson Airplane Company with \$50,000, thus decreasing that company's deposit account, and credits the United States Steel Corporation with the same amount. In this way a payment is effected without any transfer whatsoever of actual money. All that has been done is to make a book transfer.

If the Steel Corporation should be doing its banking business with another institution, say the Chase National Bank, it would still make no direct appeal to the Corn Exchange Bank for payment of the check in cash. In this case, the check would be indorsed and deposited with the Chase National Bank, and this institution (and not the Steel Company) would proceed to make collection. Time was when the procedure followed was to send out daily a "runner," or messenger, from one bank to another, to make collection in cash for credits that had accumulated in the course of the previous day's business. The second bank would likewise send a representative to the first bank, to receive payment of any amount that might be due by reason of credit instruments held against this bank. It is obvious that this duplication of effort meant waste, and as banks increased in number the expenditure of time and effort increased at a still faster pace.

But this method of collection has long since given way to the clearing house. This is a central agency, the main purpose of which is to effect daily settlements between the banks of a given area. If the Chase National Bank has claims against the Corn Exchange Bank, it is likely also that the Corn Exchange Bank has claims against the Chase National. Similar relationships exist between practically all banks of importance in any given city. In order to compare claims

and make settlements, representatives of the various banks meet at the clearing house at designated hours every day. Each representative, or "settling clerk," presents the claims of his bank against other institutions, and receives in turn the claims of the other banks against his own. A balance is struck, either debit or credit, and the amount due is paid by the bank to the clearing house or by the clearing house to the bank, as the case may be.

Reference to Table 11² should help to make the procedure clear. Bank A, for example, presents at the clearing house claims upon

TABLE 11. HYPOTHETICAL EXAMPLE OF CLEARING HOUSE DEBITS AND CREDITS

Customers of	Deposited Checks Drawn in the Following Amounts on					
	Bank A	Bank B	Bank C	Bank D	Bank E	Total
Bank A.....		\$2,500	\$ 850	\$5,800	\$3,400	\$12,550
Bank B.....	\$ 3,600		1,800	575	1,350	7,325
Bank C.....	2,200	630		750	980	4,560
Bank D.....	4,200	1,200	680		560	6,640
Bank E.....	3,050	1,600	745	820		6,215
Total.....	\$13,050	\$5,930	\$4,075	\$7,945	\$6,290	\$37,290

Banks B, C, D, and E, in the form of checks drawn against deposits in these banks and cashed by Bank A for its customers. The total of these claims is \$12,550. But the other members of the clearing house present claims upon Bank A, as is seen in the first column, to the amount of \$13,050. If one set of claims is balanced against the other, it is evident that Bank A can square its account with the clearing house by paying the amount due, \$500. Banks D and E are obliged to pay, respectively, \$1305 and \$75; while Bank B collects \$1395, and Bank C \$485, to which they are, respectively, entitled. Since total debits are bound to equal total credits, the clearing house finds itself, at the end of the day, exactly where it started. And yet, through a process of bookkeeping and the payment and collection of small balances, it has managed to adjust the claims existing among all its members. In our illustration given above, credits have been set over against debits, necessitating cash payments of only \$1880 to settle claims totaling \$37,290.

² Adapted from a table arranged by Dr. C. Louis Knight, and published in Paul F. Gemmill and associates, *An Economics Question Book*, New York, Harper & Brothers, 1931, p. 60.

The expenses of the clearing house are borne by the member banks, each paying an amount determined by its average "clearings" in relation to the total. But these expenses are comparatively slight, for the clearing house provides a very economical means of settling claims between banks. Though the volume of clearings in cities like New York and Chicago is enormous, the transactions are carried through with a surprisingly small transfer of actual money. In some cities the balances that must be paid are as small as 5 or 6 per cent of the total clearings. In New York in a recent year, the percentage of balances to clearings was 11.04. In the hypothetical illustration given in Table 11, the balances paid were a trifle more than 5 per cent of total clearings. It should be added that banks may, and often do, pay their balances by drafts on the Federal Reserve banks of their districts. There are in all about 600 clearing houses in the United States.

Out-of-town checks are cleared (or collected) very largely through Federal Reserve banks. If, for illustration, a merchant in Leesburg, Virginia, buys goods from a wholesaler in New York City, paying with his check drawn on the Peoples National Bank of Leesburg, collection would be made in something like the following manner. The wholesaler first takes the check, properly indorsed, to his bank in New York. This bank deposits it for collection in the Federal Reserve Bank of New York. The check is now forwarded to the Federal Reserve Bank of Richmond. The Federal Reserve Bank of Richmond sends it to the Peoples National Bank of Leesburg. The Peoples Bank now settles with the Federal Reserve Bank of Richmond. Upon receipt of this settlement, the Richmond bank immediately credits the Federal Reserve Bank of New York; and the New York bank, in turn, credits the wholesaler's bank. The collection is now complete.

It is estimated that some 95 per cent of all out-of-town (or "country") checks are collected in this way. "For settlements between the Reserve Banks there has been set up that ingenious device, the gold settlement fund (now the inter-district settlement fund) lodged in Washington with the Board of Governors, and represented by a gold credit on the books of the Treasurer of the United States. This fund is owned by all the Federal Reserve Banks, and settlements between Reserve Banks are daily effected by bookkeeping entries, on telegraphic advice, changing the proportion of the

gold fund which the different banks own."³ It will be observed that this is an arrangement similar in principle to the ordinary clearing house, but operating on a much larger scale.

Fluctuations in Demand Deposits. The recent trend of deposit currency is indicated in Table 12, which gives the bank deposits, other than savings deposits, in the United States for certain years from 1910 to 1947. It will be noted that the volume of bank deposits increased greatly between 1910 and 1930. The substantial reduction

TABLE 12. DEMAND DEPOSITS IN THE
UNITED STATES, 1910 TO 1947

1910.....	\$ 8,447,000,000
1915.....	10,153,000,000
1920.....	22,001,000,000
1925.....	23,631,000,000
1930.....	24,098,000,000
1933.....	15,248,000,000
1938.....	25,986,000,000
1943.....	60,803,000,000
1947.....	87,100,000,000

in deposits in 1933 is accounted for by the post-1929 business depression, and the increase in 1938 may be regarded as an indication of the improved business conditions of that year. The need for huge volumes of demand deposits in times of great economic activity is reflected in the figures for the wartime year of 1943 and the post-war year 1947. Savings deposits are excluded from the table for the reason that they come under the heading of investment credit rather than commercial credit.

Commercial credit is supplied through demand deposit accounts by national, state, and private banks; and most trust companies also engage in a general banking business. On December 31, 1947, the total number of such institutions in this country was 14,182, distributed in the manner shown below.

Members of Federal Reserve System:	
National banks.....	5,005
State banks.....	1,918
Non-members of Federal Reserve System.....	7,259
Total.....	14,182

³ W. Randolph Burgess, *The Reserve Banks and the Money Market*, New York, Harper & Brothers, 1936, rev. ed., pp. 94, 95.

1. What is credit money?
2. Explain the distinction between *investment* and *commercial* credit.
3. What two types of capital result from the creation of these two forms of credit? Explain.
4. "When *properly indorsed*, a note becomes '*negotiable*.'" Explain the italicized terms.
5. What is the process of discounting?
6. There are several forms of the "draft," but all are based on the same general principle. What is this principle?
7. What is "double-name paper"?
8. What is the function of the investment bank?
9. It is "obvious that our investment bankers exercise a large degree of control over production." In what way?
10. Explain what is meant by the *selection*, *underwriting*, and *distribution* of securities.
11. Show the way in which fixed capital is provided through the reinvestment of earnings.
12. What measures have been adopted to protect the buying public against fraud in the sale of worthless securities?
13. What percentage of the national income may we expect to be saved in this country in times of business prosperity?
14. What is deposit currency? Give a synonym for this term.
15. What proportion of our credit-currency structure is made up of deposit currency? What other items form a part of this structure, and to what extent?
16. What is a bank note? Is it similar, in any important respect, to any of the "credit instruments" mentioned earlier in the present chapter? Explain.
17. What is a demand deposit?
18. Describe ways in which a demand deposit may be created.
19. What are the regulations governing the creation of national bank notes? Why are such regulations necessary?
20. What are the regulations governing the issuance of deposit currency? Why are these regulations necessary?
21. Of what significance is the statement that "commercial banks deal mainly in *short-term obligations*"?
22. Describe the workings and state the purpose of the clearing house.
23. The transactions of the clearing house "are carried through with a surprisingly small transfer of actual money." Illustrate.
24. Explain the way in which the Federal Reserve banks facilitate the clearing of checks. What is meant by the word "clearing" as here employed?
25. What is the "gold settlement fund," and how is it used?
26. What has been the trend in volume of demand deposits during the past forty years?
27. What, approximately, is the total number of organizations in the United States that make a business of providing commercial credit?

Classify these organizations, giving an idea of the number of each type.

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13. Central Banking in the United States

*O*ur treatment of commercial banking has thus far related chiefly to banks as individual units, but we now turn to a consideration of the centralization of certain commercial banking agencies in the United States, which may be said to date from the introduction of the Federal Reserve System. The Federal Reserve Act was passed in 1913, and the Federal Reserve System began operations in the following year. It substituted a somewhat centralized system of banking for a notoriously decentralized system, and was adopted chiefly for the purpose of providing (1) greater security for depositors, and (2) a larger degree of elasticity of credit. How these objectives were to be attained will be discussed after we have sketched the structure of the Federal Reserve System.¹

STRUCTURE OF THE FEDERAL RESERVE SYSTEM

Federal Reserve Banks. The basis of the system is twelve Federal Reserve banks, located in twelve important cities of the country. Since it was the aim of the Federal Reserve Act to coordinate to some extent all of the commercial banking operations of the United States, the country was divided into twelve "districts," known as Federal Reserve districts, and one Reserve bank was established in each district. Fig. 9 gives an idea of the territory assigned to each of the several districts. It will be seen that, in so far as area is concerned, the division is very unequal. However, the basis of

¹ Our treatment of the Federal Reserve System is based largely upon W. R. Burgess, *The Reserve Banks and the Money Market*, New York, Harper & Brothers, 1936, rev. ed., which gives a clear account of the organization and early operation of this development in American banking. We have also drawn upon banking experience in more recent years, and have noted changes in the System necessitated by its failure to meet some of the needs of the post-1929 depression and post-war period.

division was not territorial equality, but the establishment of Reserve banks at points where they would best serve the banking needs of the country.

In addition to these twelve Federal Reserve banks, there are now in all but two of the districts (the first and third) "branches" of the Federal Reserve banks, which have been provided for the greater convenience of member banks that are situated at some distance from a main Reserve bank. Thus, in the twelfth district the Federal

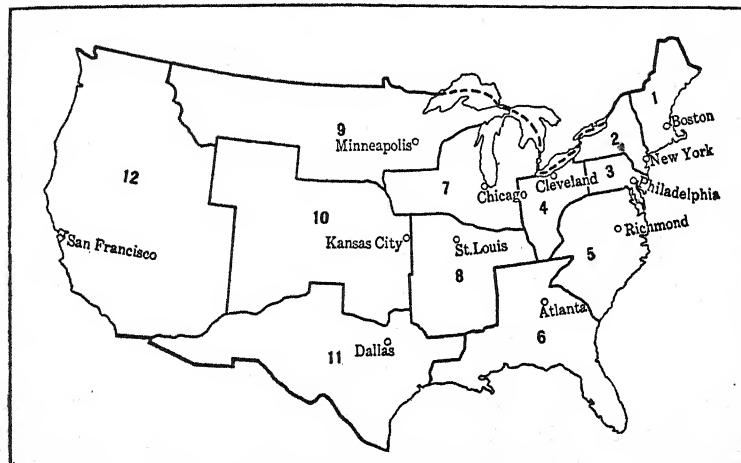


FIG. 9. FEDERAL RESERVE DISTRICTS AND CITIES IN WHICH RESERVE BANKS ARE LOCATED.

Reserve bank is located at San Francisco, but it has branches in Los Angeles, Portland, Seattle, Spokane, and Salt Lake City. In practice, then, there are in the twelfth district six centers to which Federal Reserve member banks of that district may apply for Federal Reserve service. There are, in all, twenty-five branches of Federal Reserve banks scattered throughout the country.

The Federal Reserve banks are not government banks, nor are they ordinary commercial banks. They are often referred to as "bankers' banks," and this term indicates, first, their ownership by the member banks of the districts in which they are located, and, second, the fact that they perform for the member banks much the same type of services as these member banks perform for their customers. But it is important to note—and this is true of central

banks in general—that the policies of the Federal Reserve banks are molded in the interests of public welfare, and are not directed primarily toward the goal of private gain. Indeed, their dividends are limited to 6 per cent, though all profits over and above this amount may be set aside as "surplus"; and upon this fund the banks are permitted to draw to pay the deficits of unprofitable years.

Member Banks. Every national bank is required by the Federal Reserve Act to take out membership in the Federal Reserve System, and any state bank or trust company that has a capital of \$50,000 or more is eligible for membership. In acquiring membership, a bank must subscribe to stock in the Federal Reserve bank of its district to the amount of 6 per cent of its own capital and surplus. It must also deposit all of its legal reserves with the Federal Reserve bank of which it is a member. These two items—subscription to stock in, and the deposit of reserves with, the Federal Reserve bank of the district—are the chief obligations of membership.

We have already noted the fact that each Federal Reserve bank is *owned* by the member banks of its district, and this ownership arises, of course, from the purchase by the member banks of stock in the Reserve bank. The member banks also exercise a degree of control, but by no means complete control, over the Federal Reserve bank. Every Reserve bank is administered by a board of directors. This board is composed of nine members, and is divided into three groups of three members each. Three members are Class A directors, who are elected by the member banks, which, as we have seen, are holders of stock in the Reserve bank. Three members of the board known as Class B directors, and also elected by the member banks, must be men actively engaged in industrial, agricultural, and commercial pursuits in the district. The remaining three directors, who are designated Class C directors, are selected by the Board of Governors of the System, which will be described presently. It is assumed that Class A directors will represent the interests of the member banks, Class B directors the general economic interests of the district, and Class C directors (sometimes called "government directors") the general public. The directors of each Federal Reserve bank elect a president, with the approval of the Board of Governors, for a five-year period. He is the chief executive officer.

The make-up of the Reserve bank directorship indicates fairly clearly that its function is not that of the usual commercial bank. To be sure, it is intended that a Federal Reserve bank shall aid the

banking interests of the district, but the inclusion of Class B members on the board insures that those groups of business men who depend upon the member banks for the extension of credit will have their interests looked after also, while the welfare of the public, in so far as it is dependent upon the operation of a central banking policy, will presumably be safeguarded by the Class C directors. The nature of the ownership and control of Federal Reserve banks appears to justify the statement which has often been made—that they are "semi-private, semi-public institutions."

On December 31, 1947, there were 6923 member banks in the Federal Reserve System, with total assets amounting to about \$98,000,000,000. These banks represented only 47 per cent of the commercial banks in the United States at that time, but they handled 85 per cent of the country's demand deposits.² It may be added that 5005 of these member banks, or 73 per cent of the total, were national banks, the remainder being state banks and trust companies that had applied for and gained admission to the Federal Reserve System. Despite the advantages of Federal Reserve membership, particularly in the matter of security, some banks prefer to operate under state charters, which in many instances impose fewer restrictions on a very liberal extension of credit than do the rules of the Federal Reserve System. Thus there is the possibility of making larger profits under state than under federal regulation, but also a distinct sacrifice of safety. This statement is borne out by the fact that, in the financial crash that followed 1929, there were many more bank failures among non-member banks than among the members of the Federal Reserve System.

The Board of Governors of the Federal Reserve System. General supervision and control of the Federal Reserve System are entrusted to the Board of Governors.³ This body consists of seven members, and has its headquarters in Washington. Each member of the Board is appointed for a fourteen-year term by the President of the United States, subject to the approval of the Senate. Not more than one of the seven may come from any one Federal Reserve district, and it is stipulated that appointments shall be made with "due regard to fair representation of the financial, agricultural,

² *Federal Reserve Bulletin*, March, 1948, pp. 304, 305.

³ The "Board of Governors of the Federal Reserve System" is the new name, designated by the Banking Act of 1935, for the body which, prior to that date, was known as the "Federal Reserve Board."

industrial, and commercial interests, and geographical divisions of the country."

When a bank takes out membership in the Federal Reserve System, it does not thereby lose its independence of action. It ordinarily continues to function much the same as before, conducting its operations in accord with national or state laws. The twelve Reserve banks likewise are largely autonomous units in dealing with their member banks. The amounts they lend to member banks, and the rates at which the loans are made, are ordinarily determined by each Reserve bank for itself through its board of directors. But the Board of Governors acts as a coordinating body in matters that affect more than one Reserve bank, to the end that the activities of one bank shall not interfere with the proper functioning of any of the other banks.

We shall not be able to discuss in detail the many tasks of coordination, regulation, and supervision that come within the jurisdiction of the Board of Governors, but we shall see that the Board exercises a considerable degree of control over the banking operations of the United States. The functions of the Board have been summarized by a former Federal Reserve official in the following statement:

The Board prescribes regulations governing methods and procedure of Federal Reserve operations in those matters where uniformity has appeared to be necessary. Discount rates are fixed by the several Federal Reserve Banks subject to "review and determination of the Board of Governors of the Federal Reserve System," but, under the Banking Act of 1935, "each such bank shall establish such rates every fourteen days, or oftener if deemed necessary by the Board." Open-market policy is determined by an Open Market Committee consisting of seven members of the Board and five representatives of the Reserve Banks elected by the directors by geographical areas. The Board of Governors has power to change the reserve requirements of member banks under certain conditions and within certain limits and power to prescribe margin requirements on certain types of security loans by brokers and banks.

Under the terms of the Banking Act of 1933 the Board exercises special supervision over all foreign operations of the Federal Reserve Banks. The Board passes upon all applications of banks for membership in the Reserve System, after receiving the recommendation of the several Reserve Banks, and exercises a number of specific and general powers in the supervision of member banks. The Board serves as a clearing house for interdistrict settlements, arising from check collections and wire transfers. It has a force of examiners who examine the Reserve Banks periodically, and it maintains a complete statistical record and analysis of Federal Reserve operations, much of which is made public through

the Board's weekly press statements, monthly bulletin, and annual report to the Congress. In addition to these and a number of other specific functions, the Board exercises general supervision over the operations of the Reserve Banks.⁴

THE SECURITY OF BANK DEPOSITS

Because the demand deposits of a bank are liable to be drawn upon at any time without advance notice being given, it has been customary to establish legal reserves of specified ratios with which to meet the demands of depositors. State banks operating under the various laws of the several states have been required to maintain against deposits certain minimum reserves specified in the state banking acts. The result has been a decided lack of uniformity as between states. The reserves required of the national banks, prior to the passage of the Federal Reserve Act in 1913, were laid down in the National Bank Act, and applied to all national banks throughout the country, regardless of state boundaries, though the percentages required differed with the classes of cities in which the banks were located.

Bank Reserves Under the National Bank Act. The Federal Reserve Act applies only to banks belonging to the Federal Reserve System, as the National Bank Act of the pre-Reserve era applied only to national banks. Under both of these acts, the banks of the country were divided into three groups, depending upon whether they were located in very large cities, cities of moderate size, or small cities or towns. These groups were classified as "central reserve city banks," "reserve city banks," and "country banks," respectively.⁵ Central reserve city banks and reserve city banks were required to maintain reserves amounting to 25 per cent of their total deposits, and the percentage for country banks was 15. These reserves took the form of lawful money, and in the case of central reserve city banks the whole of the legal reserve had to be kept *in their vaults* in readiness to meet the demands of depositors. Reserve city banks were required to keep one-half, and country banks two-fifths, of the specified reserves in their own vaults. The remainder they were permitted, if they wished, to deposit with approved banks in other

⁴ W. R. Burgess, *The Reserve Banks and the Money Market*, p. 12.

⁵ New York and Chicago are now the only central reserve cities; 62 other cities (mostly large but some of only moderate size) have been designated as reserve cities; and all others are regarded, for Federal Reserve purposes, as "country" areas.

cities. The reserve city banks could deposit one-half of their legal reserves in central reserve city banks, and the country banks three-fifths of their legal reserves in reserve city banks.

Since reserves thus deposited drew interest, while reserves held in their own possession did not, many of the banks cut down to the bare legal minimum the amount of legal reserves actually held in their vaults. Out of this situation arose the practice known as the pyramiding of reserves, which tended to weaken the ability of banks to mobilize their reserves in case of need. Let us suppose, for example, that a Philadelphia national bank had on its books demand deposits amounting to \$4,000,000. Since Philadelphia is a reserve city, the legal reserve against these deposits was 25 per cent, or \$1,000,000. But one-half of this amount could be deposited with a New York (central reserve city) bank, leaving in the vaults of the Philadelphia bank only \$500,000 as a reserve immediately available for the payment of \$4,000,000 of demand deposits which might be called for at any time. Presumably, the Philadelphia bank could also recall at will the \$500,000 deposited with the New York bank. But the New York bank was at liberty to treat this reserve as it would treat any other deposit; that is, it could and probably would retain in its vaults merely the 25 per cent reserve required by law, lending out the other 75 per cent, or \$375,000, at interest. If we imagine a series of bank runs injected into this situation, it is easy to see that the New York bank might find it difficult, or even impossible, to return the \$500,000 deposit on demand, and the Philadelphia bank in turn, in the absence of this part of its legal reserve of \$1,000,000, might be forced to close its doors because of its inability to pay on demand the claims of its depositors.

It might be suggested, of course, that even the full legal reserve of \$1,000,000 would be a small amount with which to try to meet outstanding deposits totaling \$4,000,000. And, indeed, it was discovered that the National Bank Act reserves of 25, 25, and 15 per cent did not always enable a bank to meet its legal obligations when confronted with a long line of insistent depositors clamoring for the payment of their claims. However, the difficulty lay not so much in the inadequacy of reserves as in the fact that, before the adoption of the Federal Reserve Act, every bank was, in time of emergency, very largely "on its own." Since the function of a commercial bank is to lend out its funds, no such bank can hope to have in its vaults sufficient money to pay off all its depositors if they happen to present

their claims at about the same time. When, under the National Bank Act, there developed in a given community a lack of confidence that took the form of runs on the banks, it was pretty much a matter of every bank for itself. One might perhaps expect neighboring banks to come to the aid of a bank in distress, lending it funds with which to pay off its depositors and thus helping to restore confidence throughout the community. This, to be sure, sometimes happened. But it is equally true that a besieged bank often called for help, and called in vain because other banks felt that they must hold fast to whatever reserves they had on hand so that they might meet the demands of their own depositors if the need should develop.

Centralization of Reserves Under the Federal Reserve Act. The Federal Reserve Act undertook to overcome the inadequacy of bank reserves to meet the demands that might be made upon the banks by their depositors. The purpose, of course, was to effect an arrangement that would make it possible for every sound bank to remain open, in contrast to the old system of reserves under which many a bank had been forced to close even though its assets were greater than its liabilities. In the matter of demand deposits, the immediate payment of claims upon demand is imperative, for the fact that a bank has assets on which it could realize within a month or two will not save it from disaster if requests for the payment of demand deposits are not met when made.

The new method of handling reserves involved not an *increase* in the size of reserves, as one might have expected, but instead a *decrease*. Under the National Bank Act, the reserve requirements for demand and time deposits were the same, being 25, 25, and 15 per cent for central reserve city banks, reserve city banks, and country banks, respectively. With the passage of the Reserve Act in 1913, these requirements were changed to 18, 15, and 12 per cent for demand deposits, and in 1917 they were lowered to 18, 10, and 7 per cent, depending upon the class of the city in which the bank was located. The reserve against time deposits, applying uniformly to all member banks throughout the Federal Reserve System, was set at 5 per cent in 1913, and lowered to 3 per cent in 1917. (As was explained in Chapter 12, the reserve requirements, since October 3, 1942, have been 20, 20, and 14 per cent on demand deposits, and 6 per cent on time deposits.)⁶ All legal reserves must be deposited

⁶ Note, in this connection, the temporary ruling, effective as of September 24, 1948, mentioned on p. 233, footnote 1.

with and held by the Federal Reserve bank of the district. The member banks do not receive interest on these reserve balances held by the Reserve banks.

This policy of pooling reserves enables the Reserve bank to give aid to any member bank upon which the depositors are drawing heavily. Formerly, the individual bank was expected to fight its own battles and to have on hand at all times a reserve large enough for any emergency. As we have seen, the reserves were often insufficient to meet the needs of the occasion. With the reserves of all member banks under the control of a central agency, the Federal Reserve bank of the district, further funds can readily be extended to the particular bank that needs them. Each district is so large that it is improbable that all banks throughout the area will require aid at the same time. It is scarcely likely, for example, that all of the six hundred and fifty member banks of the third district will need the assistance of the Reserve bank of the district at the same time. But all have deposited with the Reserve bank funds which form a large pool of reserves which are available for the use of any sound bank or banks that may need help. Further safeguards are the authorization to Reserve banks to "make advances to a member bank on its time and demand notes having maturities of not more than four months and which are secured to the satisfaction of the Federal Reserve bank," and the power of the Board of Governors to shift reserves from one Reserve district to another in time of emergency.

The principle involved in the centralization of reserves is similar to the principle of insurance. There is safety in numbers, for as numbers are increased the risk is spread. Since it is impossible to tell in advance which bank is going to be hard pressed, it was necessary under the old system for every bank to be prepared for the emergency. With the Reserve banks and the Board of Governors standing ready to give assistance whenever and wherever it may be needed, there is no necessity for so large a total reserve as heretofore. The device through which aid is ordinarily given is the rediscounting process, which will be described presently.

The Guaranty of Bank Deposits. For some years after the adoption of the Federal Reserve Act, it seemed that the financial panics that had often accompanied business depressions were a thing of the past. But the post-1929 depression wrought such havoc among the commercial banks of the country that there was no question that the banking system of the United States was still far from perfect.

In 1930, 1931, and 1932, there were 4377 failures of American banks, involving more than 2½ billion dollars in deposits. Of these 4377 banks, 3431 were not members of the Federal Reserve System. The percentage of casualties among member banks was, therefore, rather low; and it should be remembered in this connection that the Reserve System has not pretended that its members are immune to failure. The System has never promised assistance to banks that refuse to live up to the principles of sound banking as recommended by the Board of Governors and set forth in specific regulations. And it must be added, in fairness to the System, that many if not all of the banks that failed were institutions whose operations were of such a type that the Federal Reserve System could not legally come to their aid. In so far as member banks had sound, short-term commercial paper to pledge against loans from the Reserve banks, they were able to secure Federal Reserve notes with which to meet the demands of their depositors. But many commercial banks had loaned to their customers on real estate mortgages and other forms of security which the Federal Reserve banks were not allowed to accept.

Whatever may have caused the unprecedented number of bank failures in the 1930's, the loss of the holdings of hundreds of thousands of depositors led to a demand for the federal insurance of deposits. The result was the creation of the Federal Deposit Insurance Corporation, authorized by the Banking Acts of 1933 and 1935. All banks belonging to the Federal Reserve System must, and sound non-member banks may, take out deposit insurance with this corporation. Insured banks are subject to an annual assessment, payable semi-annually, of one-twelfth of one per cent of their total deposits, for the privilege of carrying this insurance.

Every depositor in banks that are insured is protected to the full extent of his deposit up to \$5000, an amount which covers completely the claims of practically all depositors of closed banks. Larger aggregate amounts may be protected by the owner placing his funds in a number of banks, making certain that the maximum he entrusts to a single bank is \$5000. On December 31, 1947, 91 per cent of the commercial banks in the United States carried insurance under the F.D.I.C.

THE ELASTICITY OF CREDIT

Commercial banks are operated primarily to supply credit to business men. If our enterprisers had the same credit needs from month

to month and year to year, and hence required commercial credit in a continuous stream of uniform volume, the problem of providing elasticity of credit would be one of minor importance.

But the economic activities of society vary greatly in volume from time to time, and the demand for credit varies correspondingly. The arrival of payday may cause a great industrial concern to call upon its bank for a hundred thousand dollars in cash with which to meet its payroll. The first day of every month, or the first few days of the month, will ordinarily witness the payment of literally millions of book accounts or other obligations that have been running for some weeks. Bankers in agricultural areas are expected to "carry" their customers during certain parts of the year by lending to them until their crops have been harvested and sold. Large amounts of credit must be available, not throughout the entire year but at certain times, to "move" the corn crop, the wheat crop, and other farm products that run into hundreds of millions of dollars. Manufacturers must be financed so that they can pay for labor, power, and raw materials while engaged in making seasonal goods for, let us say, the Easter trade or the Christmas rush. Finally, there are years of depression when but little credit is used, and years of business boom when credit facilities may be strained to the limit.

It is clear, then, that a supply of credit that is adequate for financing business at certain times may be quite insufficient for other times. Hence, there is need for an elasticity of credit that will meet the requirements of legitimate business under varying conditions, whether the quantity of credit demanded is large or small.

The Process of Rediscounting. The Federal Reserve Act undertook to provide elasticity of credit through the agency of the rediscounting process. We have noted that Federal Reserve banks are often spoken of as bankers' banks, and that this title arose in large part from the fact that the relationship between a Reserve bank and its member banks is much the same as that which exists between a member bank and its customers. Probably nowhere is this parallel relationship seen more clearly than in the handling of commercial paper; for the *discounting* of commercial paper, which is one of the most important functions performed by a member bank for its customers, is matched by the *rediscounting* of this same commercial paper, which is one of the chief services rendered by a Reserve bank to its member banks.

Business men ask their banks to discount commercial paper for

them when they must secure cash or increase their bank deposits in order to meet their obligations. Member banks ask the Reserve banks to rediscount commercial paper (that is, to discount again the paper that the member banks have already discounted for their customers) when they, the member banks, must secure cash with which to meet an emergency, or cash or increased balances with the Reserve banks which will enable them to extend further loans to their customers. However, throughout our discussion of rediscounting, the reader should bear in mind a provision in the Glass-Steagall Act of 1933 which reads as follows: "Discounting at Federal Reserve banks is definitely made a privilege, rather than a right, in that 'shall' is changed to 'may' in the phrase 'shall discount for members.'" From this provision it is clear that a Reserve bank has the power to limit the amount of credit it extends to member banks.

Rediscounting to Increase Legal Reserves. It will be recalled that a member bank must maintain with the Federal Reserve bank of its district a reserve of 13, 10, or 7 per cent (changed to 20, 20, and 14 per cent as of October 3, 1942)⁷ against the demand deposits of its customers. In depositing these reserves, the member banks acquire claims against the Reserve banks. Whenever their deposits with the Reserve banks are larger than are needed to fulfill their legal reserve requirements, member banks may withdraw the excess portion of their balances. For example, a "country bank" which owed its customers \$100,000 in the form of demand deposits would have to maintain a reserve of \$7000 (or 7 per cent) with its Reserve bank; but if these demand deposits were reduced to \$50,000, the bank could withdraw \$3500 of its deposit with the Reserve bank and still leave a sufficient balance to fulfill the legal reserve requirements. If, on the other hand, this bank wished to increase the demand deposits of its customers from \$100,000 to \$200,000, it would be required also to increase its reserves (that is, its balance with the Reserve bank) from \$7000 to \$14,000. It could do this by borrowing from the Reserve banks in much the same manner as business men borrow from member banks.

This process of borrowing by business men, as was emphasized in the preceding chapter, usually takes the form of discounting commercial paper. That is to say, the bank lends credit in the form of a bank deposit, accepting as security for the payment of the loan some sort of acceptable credit instrument. The process of redis-

⁷ See, also, footnote 1 on p. 233.

counting consists of a member bank taking this instrument to a Reserve Bank and asking the Reserve bank to accept it as security for a loan to the member bank. In this way, commercial paper of approved types is made to do double service, forming the basis, first, of a loan from the member bank to a customer, and, later, of another loan from the Federal Reserve bank to the member bank.

The only commercial paper that is regularly eligible for rediscount is short-term credit instruments that relate to actual business transactions. We have here a provision which indicates that the Federal Reserve System is designed to facilitate the extension of commercial credit and not investment credit. Short-term paper is defined as paper that matures within ninety days, but agricultural paper is acceptable if it does not run beyond nine months. Furthermore, no paper is eligible for rediscount if it has arisen from transactions in stocks or bonds. Since the rediscounting process requires indorsement by the member bank, all rediscounted instruments are "double-name paper."⁸

Not only does eligible commercial paper result from actual business transactions, but the need for credit expansion also arises out of such transactions. And so it happens that just at the time when business is brisk, with requests for more and more credit coming in to the banks, there is being created also a large quantity of commercial paper that can be exchanged, so to speak, for the desired credit. For the member banks can have this paper rediscounted at the Federal Reserve banks and thus increase their balances; and on the strength of these enlarged balances, which serve as legal reserves, they are entitled to extend further credit to their customers in the form of bank deposits. In this way an expansion of credit is made possible when it is most needed. But it should be remembered that this use of the rediscounting privilege is regarded as distinctly an emergency measure.

As a safeguard against the undue expansion of bank deposits, the Federal Reserve banks, as well as member banks, are required to set up legal reserves against the claims of depositors as represented in demand deposits. Back of every deposit extended to a member bank by a Federal Reserve bank, the Reserve bank must maintain

⁸ It should be noted that emergency banking legislation of the post-1929 depression period conferred temporary eligibility upon several other types of paper, which were to be discounted, however, only "in unusual and exigent circumstances."

a 100 per cent reserve, of which at least 25 per cent (reduced from 35 per cent, as of June 12, 1945) must be in the form of gold certificates or other lawful money, and the remainder in commercial paper. A further safeguard against excessive expansion is the interest charge made by Federal Reserve banks on all loans that are due from member banks. Since the only way to escape the payment of interest is to pay off the loan, there is every incentive for member banks to redeem their commercial paper pledges as promptly as possible. When business men no longer need large amounts of credit and hence reduce their indebtedness to their banks, these banks in turn are likely to reduce their loans from the Reserve banks in order to effect a saving in interest.

An Illustration of Elasticity of Credit. Since a reserve of only 25 per cent in gold certificates or lawful money is required (in addition to commercial paper) as security against deposit accounts in Federal Reserve banks, a gold dollar in a Reserve bank⁹ may be used as the basis of a \$4.00 credit on deposit. Consequently, a \$1.00 gold certificate in the possession of a Reserve bank will enable that bank to extend to member banks \$4.00 in credit; and member banks as a whole, in turn, will be able to extend a much greater amount of deposit currency to their customers. For the \$4.00 on deposit with the Reserve bank serves as a reserve, and is sufficient security to enable the member bank to give credit to the amount of approximately \$30.77, \$40.00, or \$57.14, depending upon whether the institution is a central reserve city bank, reserve city bank, or country bank. For \$4.00 is 13 per cent, 10 per cent, and 7 per cent, respectively, of the three amounts that we have mentioned. (This calculation is based upon the member bank reserve requirements in effect August 15, 1936, which have since been changed several times, as we have explained. Because the current reserve requirements are 20, 20, and 14 per cent, respectively, for the three classes of banks, the theoretical volume of credit which could today be based upon a \$1.00 gold certificate is \$20.00, \$20.00, and \$28.50.)

The case may be stated in a slightly different way. If a business man wished to borrow \$40.00 from a reserve city member bank, the bank would have to increase its reserve with the Federal Reserve

⁹ As we have explained, the gold itself is actually held in the Treasury, and Reserve banks hold gold certificates which are virtually "warehouse receipts," but are redeemable in gold only at the discretion of the Secretary of the Treasury.

bank to the extent of 10 per cent of this loan, or \$4.00. And the Reserve bank would need only \$1.00 in gold, plus \$3.00 in eligible commercial paper, to enable it legally to credit the member bank's account with this reserve of \$4.00.

Of course, the expansion of credit that actually takes place is not so great as we have imagined in our illustration. Indeed, it has been shown that the necessity for keeping on hand sufficient cash to meet the demands that may be made by depositors makes it impossible to extend anything like so large an amount of credit as we have suggested above would be legally permissible.¹⁰ Generalizations in such matters are risky, and because of their inexactness are often worthless; but our example of the maximum expansibility shows that gold under the Federal Reserve System is much more useful as a reserve than as a direct medium of exchange. However, it is a principle of Federal Reserve policy that reserve funds should be used (either paid out or as a basis for credit) whenever they are genuinely needed, but should not be used beyond that need. The determination of what are genuine needs is a major problem.

Rediscounting to Secure Federal Reserve Notes. The ability of member banks to increase their loans to customers depends not only upon enlarging their balances with the Reserve banks and thus gaining the privilege of expanding the volume of demand deposits, but also upon having sufficient "till money," or ready money, with which to cash the checks which customers write against their deposit accounts. Here, again, is a financial problem for which the Federal Reserve System has provided a solution.

Just as the business man looks to his bank to supply money with which to meet his payrolls, so the member bank turns to its Reserve bank when in need of ready cash to hand out over the counter. This need, like the need for larger reserves, may be met through the process of rediscounting. When a member bank presents acceptable commercial paper to the Reserve bank, it may ask either for an addition to its deposit account, in the manner that we have described, or for immediate funds in the form of Federal Reserve notes. If its supply of till money is unduly depleted, it will doubtless choose the notes, which will be readily accepted by its customers when they present checks against their deposits.

Long before the inception of the Federal Reserve System, it was

¹⁰ See, in this connection, C. A. Phillips, *Bank Credit*, New York, The Macmillan Company, 1921, chap. 8.

recognized that the inflexibility of bank note issue was a serious handicap. In times of industrial boom, when prices are mounting and business is expanding, there is a demand not only for more credit but for more actual money. Even more vital is the ability to secure funds when the boom has reached its peak, when there are anxiety and uncertainty in the air, and credit has been strained to the utmost. If the banks cannot lend aid in the face of such a crisis, bankruptcy may easily be the fate of business men whose assets are ample but unhappily are not sufficiently liquid to enable them to meet the pressing obligations of the moment.

Why could not the banks, in a situation such as this, have extended further credit to their customers? Because, first of all, bank deposits would already have been stretched just as far as possible in view of the necessity of maintaining legal reserves against deposit accounts; and because, in the second place, the conditions of *national* bank note issue were such that *this* form of credit could not readily be expanded in time of emergency. For the banking laws relating to these issues demanded that national bank notes be secured by a 100 per cent deposit of government bonds, plus a redemption fund of 5 per cent in lawful money. Therefore, a shortage of government bonds might have proved to be a very real stumbling block at a time when more bank notes were needed. For the government bonds that could be used as backing for note issues were limited in number, and most of them, as a rule, were already serving as security for issues of bank notes.

The Federal Reserve solution of this problem was to substitute commercial paper for government bonds as security against notes issued to meet the demands of business expansion. We are referring, of course, to the issuance of Federal Reserve notes through the process of rediscounting. When the member bank presents eligible commercial paper for rediscount and asks for Federal Reserve notes, the Reserve bank must deliver as security to the Federal Reserve Agent (who is the official representative, in the Federal Reserve bank, of the Board of Governors) gold certificates to the amount of 25 per cent (reduced from 40 per cent, as of June 12, 1945) of the issue, with the remainder in the form of acceptable commercial paper. In addition to this collateral fund of 100 per cent, Federal Reserve notes are backed by the assets of the issuing bank, and their payment is guaranteed by the United States government. Consequently, elas-

ticity of bank notes has been attained through the rediscounting process without any reduction in safety.

There is a tendency for Federal Reserve notes to move back to the bank of issue once the need for them has passed. When currency is again abundant and the member bank has more bank notes available than are necessary to meet the needs of its customers, it ordinarily returns as promptly as possible the Federal Reserve notes it has borrowed, thus putting a stop to the interest charge. Member banks, being profit-seeking organizations, aim to keep in their immediate possession only such money as will be needed to satisfy the requirements of those with whom they transact business. Any surplus they may have is sent to the Reserve bank, where it can be used to cancel loans or serve as a legal reserve.

The rediscounting process is "a very present help in trouble," such as a bank faces when its depositors start a run upon its resources. If the bank's total volume of deposits is large, so that it needs a great deal of money with which to pay its depositors, it should also have in its vaults a large quantity of commercial paper. If it has pursued a sound commercial banking policy, lending on short-term commercial paper arising out of actual business transactions, it will have an abundance of such paper and will experience no difficulty in rediscounting this paper, and obtaining Federal Reserve notes with which to pacify its depositors. Probably there is no better way to stop a bank run than to pay the claims of depositors not only readily, but even eagerly! More than one depositor has been paid off in full, only to fall in again at the end of the line and redeposit his entire receipts, once he has satisfied himself that his money could be had if he really wanted it. And more than one bank run has been stopped by the appearance on the scene of a Federal Reserve truck carrying bales of Federal Reserve notes. The rediscounting feature of the Reserve System has aided materially in lessening the terrors of a financial panic.

FEDERAL RESERVE CREDIT CONTROL

Need for the Control of Credit. The Federal Reserve System of the United States, like the central banking systems of other countries, was designed primarily to contribute to the public welfare, and not to private profit. This means that control must be exercised over the expansion of credit so that the quantity of credit in circulation shall bear a definite relationship to business needs. If, therefore, in a

period of business boom, credit has been expanded so greatly as to bring reserves close to the minimum of safety, further increases should be prevented if possible. But if business is inactive and reserves are more than ample (as they are likely to be in time of business depression), the use of credit should be stimulated.

Whether the need for special measures of control should be determined on the basis of the reserve ratio, the total volume of credit that has been extended, the general level of prices, or upon some other basis, has never been definitely established. The Board of Governors of the Federal Reserve System has admirable facilities for the collection of economic data of all sorts, and presumably makes use of these data in framing its credit policies. And since, according to the Board, "the objective in Federal Reserve discount policy is the constant exercise of a steady influence on credit conditions," it is reasonable to suppose that the Board would regard any evidence of undue expansion or contraction of credit as ample warrant for attempting to remedy the situation.

Methods of Credit Control. The principal method of controlling credit is the manipulation of the interest charge, or "rediscount rate," as it is often called. If this interest rate is raised, so that member banks are made to pay more for their loans from the Reserve banks, they may be persuaded to reduce rather than increase their borrowings. If, on the other hand, the rediscount rate is lowered, it may have the effect of encouraging borrowing, and thus put new life into business at a time when a stimulant is badly needed. In general, the rediscount rate for each district has been under the control of the Reserve bank of the district, but these rates are subject to "review and determination of the [Board of Governors]." In September, 1927, for example, the Federal Reserve Bank of Chicago was forced, over its protest, to lower its rediscount rate. The Board has the power, therefore, to change the rediscount rates of any or all of the Reserve banks.

In order to be genuinely effective, it appears that changes in the rediscount rate must be accompanied by "open-market" operations on the part of the Reserve banks. Without attempting to explain these operations in detail, we may say that they consist of the purchase or sale of securities (chiefly bankers' acceptances and government obligations), for the purpose of making it easier or more difficult, as the case may be, for member banks to extend credit. When the Reserve banks *sell* large quantities of such securities, the buyers usually pay

for them by writing checks against deposit accounts in member banks. The Reserve banks debit these amounts against member bank balances held in the Reserve banks, and by thus reducing these balances they reduce at the same time the legal reserves of the member banks. This reduction in reserves discourages further extension of credit by these member banks.

When, on the other hand, the Reserve banks *buy* securities, they pay for them with checks drawn on themselves. The sellers of the securities deposit these checks to their credit in member banks, and these banks commonly send them to the Reserve banks with instructions to credit their accounts. In this way, their deposit balances with the Reserve banks are increased, and likewise, of course, their legal reserves. These large and partly unused reserves encourage the member banks to extend credit more freely than before. "The principle of open-market operations may be summarized," writes an authority on the subject, "by saying that purchases of securities by Reserve Banks tend to relieve member banks from debt to the Reserve Banks, and lead them to adopt a more liberal lending and investing policy. Money rates become easier; bank deposits increase. Such purchases tend to create a borrower's market. Conversely, sales of securities by the Reserve Banks increase member-bank borrowing and lead the banks to adopt a somewhat less liberal policy. Money rates grow firmer; bank deposits tend to decline. Sales of securities tend to create a lender's market."¹¹

To these two important methods of control may be added the refusal to rediscount commercial paper for member banks that are using the credit obtained through rediscounting for any purpose "inconsistent with the maintenance of sound credit conditions"; the use of "moral suasion" with member banks that remain continuously in debt to Reserve banks for considerable lengths of time, and thus in effect increase their own capital out of Federal Reserve funds; and the publication of weekly reports on the condition of member banks in large cities, data indicating the condition of business, and warnings against the unwarranted extension of credit. The Banking Acts of 1933 and 1935 strengthened considerably the authority of the Board of Governors over the member banks.

Effectiveness of Federal Reserve Controls. Whether or not the control powers at the disposal of the Board of Governors can actually be used in such a way as to induce businessmen to expand their pro-

¹¹ W. R. Burgess, *The Reserve Banks and the Money Market*, p. 239.

duction when the welfare of society requires expansion, is an open question. The fact is that enterprisers are ordinarily moved to greater activity only by the prospect of profits, and the ability to borrow money at an abnormally low rate of interest may prove to be an insufficient incentive if the general business outlook is unfavorable. It does seem probable, however, that the powers now held by the Board should enable this group of officials, if they apply the controls with courage and wisdom, to do much to prevent an undue expansion of credit in what might be thought of as a relatively *normal* situation.

However, the conditions that existed during World War II were anything but normal, so far as the volume of credit was concerned. The costs of the war were met largely by the sale of government bonds, not only to individuals and business concerns but also to the banks, which paid for them by establishing deposits to the credit of the government. Since these deposits were used by the government for paying its bills, they brought huge quantities of purchasing power into the hands of individuals and firms from whom the government bought commodities and services, and this increase tended to raise general prices, for reasons which will be made clear in the following chapter. In that chapter, also, we shall note the measures of *direct* price control which were adopted for holding prices in check under conditions so highly abnormal as to render ineffectual the *indirect* controls of the Board of Governors, which we have described above.

Some Shortcomings of American Centralized Banking. According to Montague Norman, Governor of the Bank of England, a central bank should "have the sole right of note issue; it should be the channel—and the sole channel—for the output and intake of legal tender currency. . . . It would further be the duty of a central bank to effect, as far as it could, suitable contraction and suitable expansion of credit, in addition to aiming generally at stability. . . . When necessary, it would be the ultimate source from which emergency credit might be obtained in the form of rediscounting of approved bills, or advances on approved short securities, or government paper." The concentration of these various functions in a single body, such as the Board of Governors, would appear to be essential to the operation of a satisfactory policy of credit control. Centralization of this kind, a reduction in the number of banks in the country, compulsory membership in the Federal Reserve System, the prohibition of real-estate loans by commercial banks, and the development of the notion that banking is an important public service, are among the reforms that

must be effected before we have in the United States a system of centralized banking that is comparable, in so far as service and safety are concerned, to the central banking systems of England and certain other countries.

1. What two specific objectives led to the inauguration of the Federal Reserve System?
2. What is a Federal Reserve bank, and where are the Reserve banks located?
3. What is the significance of the statement that Federal Reserve banks are "bankers' banks"?
4. Explain the suggestion that Federal Reserve banks are "semi-private, semi-public institutions."
5. What is a member bank, and how does a bank secure membership in the Federal Reserve System?
6. By whom are the Reserve banks owned, and by whom controlled?
7. To what extent are the commercial banking agencies of the country allied with the Federal Reserve System? Be specific.
8. Describe the organization of the Board of Governors of the Federal Reserve System, and enumerate and explain its powers.
9. What changes were made in the handling of bank reserves through the provisions of the Federal Reserve Act? What are the present reserve requirements for demand deposits and time deposits?
10. What was the purpose of changing the legal reserve requirements?
11. Give some idea of the number and extent of bank failures in 1930-32. To what extent did these failures relate to non-member banks?
12. Discuss the federal guaranty of bank deposits.
13. Why is there need for elasticity of credit in the banking system of the United States?
14. State concisely the nature of the process of rediscounting.
15. Describe the rediscounting process when used for increasing legal reserves.
16. What are Federal Reserve notes?
17. What function are these notes supposed to perform?
18. How does the plan of issuance of these notes facilitate the performance of this function?
19. Describe in detail the method of providing a larger degree of elasticity of credit by expanding and contracting the issue of Federal Reserve notes.
20. In what respects, if at all, is the issuance of Federal Reserve notes superior to that of national bank notes in meeting the needs of a complicated industrial society?
21. How may the issuance of Federal Reserve notes be used advantageously in stopping a bank run?
22. Why is there need for central control of credit?

23. What are the methods of credit control employed by the Board of Governors of the Federal Reserve System?
24. In what way might financial powers granted the President of the United States and the Secretary of the Treasury interfere with the proper functioning of the Board of Governors in its attempt to put into effect a consistent policy of credit control?

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14. *Fluctuations in Purchasing Power*

The study of prices, as pursued by economists, follows two main lines of inquiry. The first has to do with general, or average, prices. The general prices of one time are compared with the general prices of another time, and an effort is made to measure and explain any changes that may have taken place. The general prices of a given time—say, of the year 1947, or a single month of that year—are often called a “price level.”

The second line of inquiry into prices seeks to explain the factors that determine the prices of individual commodities and services as these prices relate to one another. What is it, for example, that determines the price of a pound of butter or a ton of coal, both at a specified time and in the long run? Questions of this kind will be treated later, in our analysis of individual prices. In the present chapter we deal with general prices, or price levels.

THE DETECTION AND MEASUREMENT OF PRICE LEVEL CHANGES

General prices at different times, say in two or more years, may be compared through the use of an “index number.”

The Making of Price Index Numbers. Price index numbers are constructed by choosing a *base year*, in which general prices are given a rating of 100, and then giving to prices of other years ratings either higher or lower than 100, depending upon whether the prices of those years are higher or lower than those of the base year.

The principle of index numbers will be seen clearly if we construct a simple table and describe, with actual prices, the way the index numbers are arrived at. Table 13 is made up of the prices of five commodities for the years 1926, 1920, and 1947.

The year 1926 has been chosen as the base year. The individual prices of that year are added, and to this aggregate is given a rating

of 100 per cent. The percentages for the other two years are arrived at by comparing the aggregate prices of those years with the aggregate for 1926. Dividing the aggregate for 1920 (\$1.79) by the aggregate for 1926 (\$1.55), and multiplying by 100, we get the index number of 115 for 1920. In like manner we arrive at an index of 128 for 1947. The index number for 1926, the base year, is, of course, 100.

TABLE 13. CONSTRUCTION OF UNWEIGHTED INDEX NUMBERS

The aggregate of the 1926 wholesale prices of five commodities being used as a base, the "relatives" (or percentages) for 1920 and 1947 are computed by dividing the aggregates of the latter years by the aggregate of the base year, and multiplying by 100. The results are the unweighted index numbers for these years. The method is called the "relative of aggregates."

Commodities	Prices per Unit		
	1926	1920	1947
Butter (per pound).....	.40	.67	.68
Eggs (per dozen).....	.30	.48	.54
Coffee (per pound).....	.58	.15	.24
Lead (per pound).....	.08	.09	.15
Cotton (per pound).....	.19	.40	.38
Aggregate Prices.....	\$1.55	\$1.79	\$1.99
Unweighted Index.....	100	115	128

Weighted and Unweighted Index Numbers. These three index numbers are "unweighted"; that is, the five commodities that we have used have affected the total index number in proportion to their *prices per unit*, and not in proportion to their relative importance in the total volume of the country's trade. But some items enter much more extensively into trade than others, and the large sales of such goods entitle them to special consideration in the construction of indexes. Consequently, it is now the custom to "weight" index numbers, multiplying the price of each commodity by a number indicating its relative importance in total trade, so that the part played by each item in influencing the final index number is determined by the quantity of that commodity that is bought and sold.

If we assume that the sales of butter, eggs, coffee, lead, and cotton amount to 20,000, 30,000, 10,000, 5,000, and 20,000 units, respectively,

we may compute *weighted* index numbers which reflect more accurately than *unweighted* indexes the changes that have taken place in general purchasing power. These revised index numbers, as is shown in Table 14, are 100 for 1926, 140 for 1920, and 150 for 1947.

There are many series of price indexes in this country that have been constructed with care and are being kept up to date. The late Professor Irving Fisher, of Yale University, used to publish a weekly *commodity* index based on 120 items. Carl Snyder, of the Federal

TABLE 14. CONSTRUCTION OF WEIGHTED INDEX NUMBERS

The individual prices are multiplied by the quantities sold. An aggregate of these total prices is found for each year, and the index numbers are arrived at by dividing each of these aggregates by the aggregate for the base year, and multiplying by 100. The results are weighted index numbers.

Commodities	Units Sold Annually	1926		1920		1947	
		Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price
Butter (per pound)....	20,000	.40	\$ 8,000	.67	\$13,400	.68	\$13,600
Eggs (per dozen).....	30,000	.30	9,000	.48	14,400	.54	16,200
Coffee (per pound)....	10,000	.58	5,800	.15	1,500	.24	2,400
Lead (per pound).....	5,000	.08	400	.09	450	.15	750
Cotton (per pound)....	20,000	.19	3,800	.40	8,000	.38	7,600
Aggregate Prices.....			\$27,000		\$37,750		\$40,550
Weighted Indexes.....			100		140		150

Reserve Bank of New York, for many years published a *general* index in which were included not only wholesale and retail commodities, but many other items. The United States Bureau of Labor Statistics computes a *cost of living* index, month by month. One of the best indexes of *wholesale commodity prices* is that published by this government Bureau.

Snyder's General Price Index. As we have noted, Carl Snyder's index of general prices included a wide variety of items. It was, indeed, an *index of indexes*, for Dr. Snyder computed his index numbers from twelve separate indexes compiled by government bureaus, the Federal Reserve Bank of New York, and several other agencies. The twelve types of prices that went into the making of this general index were security prices, composite wages, retail food prices,

prices of equipment and machinery, farm prices at the farm, automobile prices, wholesale hardware prices, rents, realty values, other cost of living items, transportation costs, and industrial commodity prices at wholesale. Because it included so wide a variety of items, this general price index has often been used for calculating the purchasing power of money, but only up to and including the year 1939, for this index was discontinued in 1940.

Wholesale Commodity Price Index of the Bureau of Labor Statistics. We must take time to describe briefly the index of wholesale commodity prices to which we referred above. For many years the Bureau of Labor Statistics has compiled, month by month, an index of commodity prices, which is of importance not only because it is constructed with great care from a great many commodity prices, but also because it is cited so often in current newspaper and magazine articles. Probably no other index of prices is so widely used. It is now made up of the wholesale prices of over 800 commodities; and these commodities include farm products, foods, hides and leather products, textiles, fuel and lighting, metal and metal products, building materials, chemicals and drugs, house furnishings, and miscellaneous goods. The base year of the index has been changed from time to time as the Bureau has deemed desirable. At present, 1926 is the year on which the index is based.

The number of items entering into an index is not a matter of hard and fast rule. Some indexes include many items and others relatively few, but the exact number appears to be much less important than the exercise of care in choosing representative samples. Professor Fisher, who wrote widely on the subject, felt that an index that did not include more than 20 items was seldom of much value. He regarded 50 items as a much more satisfactory number. "After 50, the improvement obtained from increasing the number of commodities is gradual and it is doubtful if the gain from increasing the number beyond 200 is ordinarily worth the extra trouble and expense," according to this authority.¹

The index of the Bureau of Labor Statistics goes back as far as 1890, but the figures for years prior to 1926 are based on fewer commodities than are the figures since 1926; however, to quote an official statement of the Bureau, "they may be considered comparable for

¹ Irving Fisher, *The Making of Index Numbers*, Boston, Houghton Mifflin Company, 1927, 3rd ed., p. 340.

TABLE 15. INDEXES OF COST OF LIVING, PURCHASING POWER OF THE DOLLAR, AND WHOLESALE COMMODITY PRICES, 1913 TO 1948^a

Year	Cost of Living Index	Index of Purchasing Power	Wholesale Commodity Index
1913	70.7	141.4	70
1914	71.8	139.3	68
1915	72.5	137.9	69
1916	77.9	128.4	85
1917	91.6	109.2	117
1918	107.5	93.0	131
1919	124.5	80.3	139
1920	143.2	69.8	154
1921	127.7	78.3	98
1922	119.7	83.6	97
1923	121.9	82.0	101
1924	122.2	81.8	98
1925	125.4	79.7	103
1926	126.4	79.1	100
1927	124.0	80.6	95
1928	122.6	81.6	98
1929	122.5	81.6	96
1930	119.4	83.8	86
1931	108.7	92.0	73
1932	97.6	102.5	65
1933	92.4	108.2	66
1934	95.7	104.5	75
1935	98.1	101.9	80
1936	99.1	100.9	81
1937	102.7	97.4	86
1938	100.8	99.2	79
1939	99.4	100.6	77
1940	100.2	99.8	79
1941	105.2	95.1	87
1942	116.5	85.8	99
1943	123.6	80.9	103
1944	125.5	79.7	104
1945	128.4	77.9	106
1946	139.3	71.8	121
1947	159.0	62.9	152
1948 (June)	172.0	58.1	166

^a Source: United States Bureau of Labor Statistics. Base for cost of living and purchasing power indexes, 1935-39 average; for wholesale commodity index, 1926.

all practical purposes." This index, like that illustrated in Table 14, represents a "relative of aggregates"; moreover, all of the items that have been used, unlike those of Table 13, have been carefully weighted by multiplying individual prices by the quantities sold.

Cost of Living Index. The cost of living index of the Bureau of Labor Statistics is based upon the prices of commodities and services purchased by wage earners and lower-salaried workers in thirty-four large cities of the United States. The prices of food, rent, clothing, house furnishings, fuel, light, and miscellaneous items go into the making of this index. It is, therefore, the best index we have of the prices of the kinds of goods for which most of the money income of most of the people of the United States is currently spent. The base used is the average prices of these goods during the five-year period 1935 to 1939, inclusive. This cost of living index has been computed for all years as far back as 1913. In several of our illustrations we shall treat this index as though it included *all* prices, and as if it were therefore an index of *general* prices or the *price level*.

The Cost of Living and Purchasing Power. In Table 15 are given the index numbers of the cost of living (or price level), of the purchasing power of the dollar, and of wholesale commodity prices, for the years 1913 to 1948, inclusive. A comparison of Columns 1 and 2 shows that when the cost of living index is high the index of purchasing power is low, and vice versa. This is necessarily the case, since the index of purchasing power is obtained by dividing the price index of the base year (in the present instance, the *average* for 1935-39, which happens to be approximately the same as for the year 1940) by that of another year, and multiplying by 100. We see, then, that a United States dollar in 1913 bought 141 per cent as much as in 1940; but in June, 1948, it bought only 58 per cent as much as in 1940. Therefore, the purchasing power of the dollar was great in 1913, but small in 1948; and the price level was low (71) in 1913, and high (172) in 1948.

Curves of Index Numbers. The cost of living index and the index of purchasing power for 1913 to 1947, inclusive, are plotted in Fig. 10, so that the changes from year to year may be noted readily.

The horizontal line opposite the index number 100 shows the kind of price "curve" we would have had, had there been no changes in prices during the period in question. The curve indicating the price level that actually prevailed in these years shows that from 1913 to 1916 prices were fairly stable; that there was a sharp advance from 1916 to 1920, then a sudden fall to 1922; that from 1923 to 1930 prices were again fairly stable, though on a much higher level than between 1913 and 1916; and that after 1930 there was a steady decline to 1933, followed by a slight upturn in 1934 which

continued to 1937 but declined for two years thereafter, only to rise sharply from 1940 to 1947 in response to the stimulus of World War II and the shortages of goods in the post-war period. The peak of prices for this thirty-five-year period was reached in 1947, with the price level even higher than in 1920, a year in which prices were twice as high as before World War I—so high, indeed, that the purchasing power of the dollar was only 45 per cent as great in March, 1947, as in 1913.

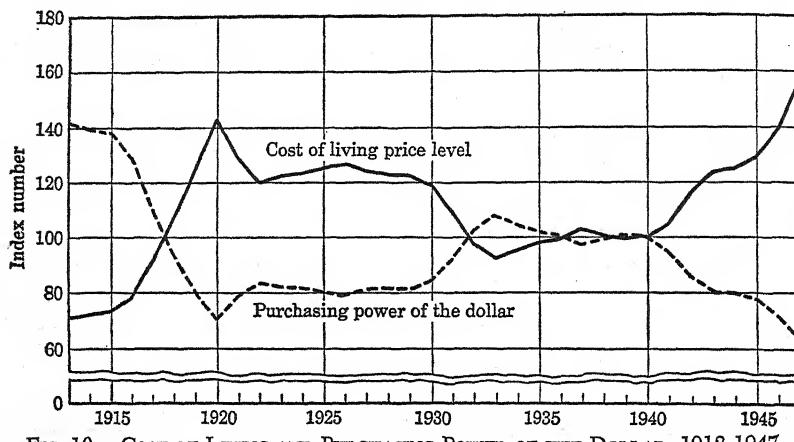


FIG. 10. COST OF LIVING AND PURCHASING POWER OF THE DOLLAR, 1913-1947.

Changes in the Value of Money. We have noted that the index of purchasing power of the dollar varies inversely with the price level index. Whenever the latter is higher than 100, the former is lower than 100. This fact is shown graphically in Fig. 10. Every advance in the price index indicates a decline in the value of money, and vice versa. In 1947, for example, when the cost of living index was 159, the index of purchasing power was 63. This means that the value of the dollar was less than two-thirds as great in 1947 as in 1940. The index of purchasing power, then, is also an index of the value of money.

POSSIBLE CAUSES OF CHANGES IN PRICE LEVELS

Our reference to money in the preceding paragraph suggests that money may have something to do with changes in price levels. This relationship between money and prices is set forth in the Quantity Theory of Money. The theory states that general prices

tend to vary directly with the quantity of money—or, as some quantity theorists say, with the quantity of money and credit—in circulation. This means that if the quantity of money is increased, other things remaining unchanged, the price level will rise; and if the quantity of money is decreased, other things remaining unchanged, the price level will decline.

The Equation of Exchange. The “other things” to which we have referred are (1) the velocity of circulation of money, and (2) the volume of trade. The velocity of circulation refers to the “rate of turnover” of money, or the number of times that it is used in a given period. We saw in an earlier chapter that money may have a turnover of twenty-five or thirty times a year; that is, the same dollar may be used in twenty-five or thirty purchases in a twelve-month period. The volume of trade relates to the total number of exchanges that take place in a given time; of course, an exchange is made every time a thing is bought or sold. With these facts in mind, we may set down a formula, known as the “equation of exchange,” from which we shall exclude “credit” for the present, but include it later. We assume for the moment, then, that all goods are paid for with money. The equation of exchange, under these simple conditions,

$P = \frac{MV}{T}$

In this formula, P relates to

the price level, M to the quantity of money, V to the velocity of circulation (or turnover) of money, and T to the volume of trade. We have already noted that money is desired ordinarily not for its own sake, but for its usefulness in securing economic goods. Since this is true, it is probable that all the goods offered for sale will exchange for all of the money that is available, since purchasers, in their desire to secure goods, will bid higher and yet higher prices for the goods they wish, until the limited quantity of money prevents further bids.

Our equation of exchange is merely a convenient way of expressing this fact, and what it says in effect is that, for a given period of time, prices in general are determined by the relationship between MV and T. It will be apparent, therefore, that any change in M or V, without a corresponding change in T, will cause a change in P. If, for example, the quantity of money (M) should increase, the other factors remaining constant, the price level will rise. An increase in the velocity of circulation (V), without change in the other factors, will have a similar effect. And if the volume of trade (T)

should increase, without a corresponding change in either the quantity of money or the velocity of circulation (or both), the price level will experience a decline. It is evident, then, that there is a relationship among these three factors, and that a change in any one, without some offsetting change in either one or both of the others, is bound to affect the price level. As Professor Cassel puts it, "The existing quantity of money must involve a definite performance of payments, to which the level of prices is obliged to adjust itself."

Examples of the Equation of Exchange. The possible effects upon the price level of changes in the quantity of money in circulation, the velocity of circulation, or the volume of trade, may be illustrated by several examples. Let us assume, to make our conditions very simple, that the total amount of money in circulation is \$5000; the velocity of circulation is 30; and the total trade is 150,000 "goods units," every goods unit being exactly like every other, and each consisting of 1/150,000 of the total quantity of every kind of economic goods entering into trade during the period under consideration.² Under these conditions, the price of a goods unit may be ascertained by recourse to our formula. Substituting the known quantities for M, V, and T, we have the following equation:

$$P = \frac{\$5000 \times 30}{150,000}.$$

The price of a goods unit, therefore, is \$1.00. Since a goods unit represents all kinds of goods, we may say that a unit of *goods in general* sells at this time for \$1.00; and by giving to this amount an index number of 100, we may compare prices at other times with prices at this time, provided we have specific figures to substitute for the symbols in the equation of exchange.

If we suppose, by way of illustration, that a year later the quantity of money was twice as great as in the above example, but that there had been no change in V or T, a simple calculation will show that the price of a goods unit would be \$2.00, and the index number 200; and if the quantity of money were to fall to \$2500, with no change

² The assumption involves the supposed division of the whole of every kind of economic goods that is sold (both commodities and services) into 150,000 equal parts, and the combination of one fractional part of each of these items into a single unit, which we are calling a goods unit. Each goods unit would then consist of 1/150,000 of the total volume of trade, and would therefore represent not only all items but also the proportion to which every item entered into trade. Readers who are familiar with Professor Fisher's "goods dollar" or "commodity dollar" will note here a family resemblance to that well-known concept.

taking place in the other factors, the price would necessarily drop to 50 cents, and the index number to 50.

If M and T were to remain constant at \$5000 and 150,000, respectively, while V (the velocity of circulation of money) changed from 30 to 15, we should again have a goods unit selling at 50 cents, and the index number of general prices would be 50. If M and V should remain constant, while T increased to (say) 300,000 units, then once more the price per goods unit would be 50 cents, and the index number of general prices would be 50.

These simple calculations demonstrate that a change in P may be the result of a change in M, V, or T, or a combination of changes in these three factors of the equation. Because we assumed that the *total volume of trade* consisted of goods units, there can be no question that the prices about which we have been talking are *general prices*, or *price levels*. Since we took as a base the period in which a goods unit sold at \$1.00, we were justified in placing the index number for that period at 100; and from this point it would follow logically that the index for the second period (with a goods unit selling at \$2.00) would be 200, and the indexes for the remaining three periods must be 50.

"Credit" in the Equation of Exchange. It is now necessary to make a modification in our equation of exchange as it has been described, since prices are affected not only by the quantity of *money* available for the purchase of goods, but by the quantity of *credit* as well. Indeed, credit plays a much greater part than money in influencing the price level, since the quantity of deposit currency available for the purchase of economic goods of various kinds is several times as great as the quantity of money actually in circulation. The general nature of the equation, however, remains unchanged. All that need be done is to insert two new factors, M' for credit, and V' for the velocity of turnover of credit. The formula as revised, is as follows: $P = \frac{MV + M'V'}{T}$. If all the factors of this

equation except P are known, this unknown factor (representing the price level) may be ascertained just as readily as in the simpler form of the equation.

The Quantity Theory of Money. It is obvious, therefore, that the changes in the price level are brought about by changes in one or more of these several factors. Unfortunately, it is not possible to say with great exactness to what extent these factors do change from

time to time. It is the contention of a group known as the "quantity theorists" that the important changes in price levels result from changes in M and M' , which are usually grouped together under the title, "circulating media." It will be recalled that there is a relationship, though not a very exact one, between money and credit, since credit, which exists chiefly in the form of deposit currency, is based upon money in the form of bank reserves; so that, within certain rather wide limits, the quantity of credit is fixed by the quantity of money.

The quantity theorists believe that changes in the velocity of circulation are not of sufficient importance to affect the price level greatly; that is to say, they are of the opinion that fluctuations in the velocity of circulation do not prevent the dollar from being employed just about as many times in one year as in another, over long periods of time. Though they admit that the total volume of trade changes somewhat from time to time, they argue that fluctuations in T would not account for the great changes in price levels that have sometimes taken place. As for M and M' (money and credit), there can be no doubt that these items have fluctuated very greatly at times. The fact that their increases and decreases have coincided rather closely with increases and decreases, respectively, in price levels, seems to indicate that the quantity theorists may have some justification for believing that money and credit are by all odds the most significant factors in bringing about these fluctuations in general prices.

Historical Verification of the Quantity Theory. An examination of conditions that existed between 1913 and 1920, a period during which general prices in the United States almost doubled, tends to corroborate the theory that money and credit are the most important influences in effecting changes in price levels. Table 15 shows that the price level index rose from 71 in 1913 to 143 in 1920. If the total volume of trade had been smaller in 1920 than in 1913, part, at least, of this increase in prices might be attributable to T . But, as a matter of fact, production and exchange actually increased in the period under discussion. Almost nothing can be said with assurance about V and V' during these seven years, but it seems probable that they were not responsible to any appreciable extent for the tremendous increase in general prices.

When we examine M and M' , however, we discover increases in the quantities of these factors that suggest very strongly that the

high price level of 1920 may properly be charged up to them. The concrete facts about money and credit in the period under discussion are these: In 1913 the total amount of money in the United States was less than \$4,000,000,000, but by 1920 it was more than \$8,000,000,000. The amount of *increase*, to be exact, was 116 per cent. This increase was due largely to shipments of gold from Europe to the United States. Credit in the form of bank deposits experienced an increase of 152 per cent from 1913 to 1920, jumping from less than \$9,000,000,000 to approximately \$22,000,000,000. Another increase in M' resulted from an extension of credit due to the rediscounting of commercial paper, and to a large volume of loans made on government bonds by the Federal Reserve banks. Finally, some \$16,000,000,000 worth of war bonds had been issued up to 1920, and these in many cases circulated almost as freely as money, thus increasing greatly the total quantity of circulating media.

With these facts before us, it is not difficult to believe that M and M' were largely responsible for the extremely high price level of 1920, as compared with the level of 1913. Another evidence of the influence of M and M' upon price levels is to be found in the gradual increase in general prices from 1900 to 1913. During this period there was a steady increase in both money and credit, resulting from the increased production of gold that had its beginning in the latter years of the nineteenth century. Finally, an examination of money and bank deposits for 1929 and 1933 shows an *increase* of about a half billion dollars in the quantity of money during this period, but a *decrease* of eight billions in the volume of demand deposits. This substantial net decrease in total circulating media in the United States was accompanied by a decline in prices from 122 to 92. To quantity theorists the concurrent decline in the price level and the volume of circulating media appears to suggest a causal relationship between the two, and to provide further confirmation of the soundness of the quantity theory of money.³

However, what we have said about high general prices going hand in hand with a large total volume of circulating media, and low general prices with a small total volume of circulating media, must not be thought to constitute conclusive proof that the volume

³ Later in the chapter we shall note the concern that was caused by the enormous volume of liquid assets (some 225 billion dollars' worth, as of February, 1946) that accumulated in the active and post-war periods of World War II.

of money and credit is the *cause*, and the price level, high or low, the *effect*. Indeed, there are a good many economists of high standing who believe that the opposite is true, and that changes in the total volume of circulating media may be the result of changes in general prices—that it is changes in P which lead to changes in M and M', and not the reverse. But it is safe to say that there are few, if any, who would deny that the general level of prices, P, is affected by changes in M and M', provided all other factors in the equation of exchange remain fixed.

EFFECTS OF FLUCTUATIONS IN PRICE LEVELS

We may now examine briefly some of the results of changes in general prices. It should be remembered, first of all, that, barring transitional effects, it matters little whether prices are high or low. The equation of exchange shows that all goods entering into trade will exchange for all the money and credit in circulation. If, therefore, the quantity of circulating media of one period were double that of another period, with trade and velocity of circulation remaining unchanged, the price level would be just twice as high as it had been. Doubling the amount of circulating media, then, means a doubling of general prices, if V, V', and T have not been affected; and it means also that a given standard of living now costs approximately \$6000 instead of \$3000, or \$20,000 instead of \$10,000.

But if this new price level should remain unchanged for a considerable length of time, wages and other forms of payment would also tend to be twice as high as they had been. We would then give twice as many dollars (or "counters") for a given amount of goods as were required to make the purchase prior to the increase in general prices; but no hardship would ensue, since wages and salaries would also consist of twice as many dollars (or counters) as had been received before the rise in prices took place. We see, then, that it is the *transitional effects*—the results of sudden and extensive price fluctuations—which cause the trouble that is experienced on account of changes in price levels. High prices and low prices are equally harmless, if only one or the other, once adopted, will "stay put." But changes in price levels may result in genuine hardship for some and unearned gains for others.

The Hazards of Long-Time Credit. These gains and losses are likely to occur whenever there is an extension of credit over a period of years during which changes in the price level occur. In lending

or borrowing money, it is really purchasing power which is loaned or borrowed. If a business man had borrowed \$1000 in 1940 and repaid the loan in 1947, the purchasing power returned to the creditor would have been approximately 63 per cent of the amount received in 1940, and the creditor would have been the loser by \$370. If, on the other hand, this loan had been made in 1920 and returned in 1928, the borrower would have returned to the creditor \$1169 in purchasing power, instead of the original \$1000 borrowed, because of the decline in general prices. And if he had waited until 1933 to return the loan, he would have paid back \$1000 in money but more than one and one-half times as much purchasing power as he borrowed, since the \$1000 in 1933 would have bought about as much economic goods as \$1550 in 1920.

These simple illustrations show that debtors gain by paying their obligations when prices are high, and lose by paying when prices are low. Business men are borrowing all the time, sometimes to meet current expenses and again to make additions to equipment. Changes in price levels may have serious consequences to such persons if they happen to borrow when prices are high in order to make improvements, for, as we have seen above, they may have to repay the loans when prices are low, and this means that they must pay back more purchasing power than they received. Hence, creditors gain by reason of declines in the price level, *provided the fall in prices does not make it impossible for the debtors to make payment.* This proviso is important, for sudden and great fluctuations in price levels may make it impossible for debtors to meet their obligations, and force them into bankruptcy. In such event the creditors are, of course, far worse off than if the price level had remained unchanged, or had even risen so as to make the repayment of loans easy, in the manner described in the preceding paragraph.

The Problem of Fixed Money Income. Sharp rises in price levels also have serious effects upon persons living on incomes from fixed money obligations. We may take the example of a retired business man living in 1913 on an annuity of \$6000. With prices as they were at that time, he could live quite comfortably on this amount. But in 1920 the same \$6000 would buy only as much economic goods as he could have bought in 1913 for \$2961, and his standard of living would have dropped accordingly. However, if he was still alive in 1933, he found that much of his lost purchasing power had come back. For his \$6000 in 1933 had 55 per cent more purchasing

power than in 1920, since the index of purchasing power for 1933 was 108, as against 70 for the earlier year. This illustration could be extended to include all persons living on annuities, pensions, insurance benefits, or interest from bonds; all institutions (such as colleges) operating largely on endowments; and, to a somewhat lesser degree, salaried workers as contrasted with wage earners.

The Plight of the Salaried Worker. The term "salaried worker" refers here to types of wage earners whose incomes are on an annual or monthly, and not upon a weekly basis. This classification includes, of course, teachers, preachers, government employees, office workers, and a host of others. The important fact about the incomes of these persons is that, while salaries may change somewhat to meet changes in price levels, they almost invariably change very slowly. There is, for example, the case of the college teacher who in 1940 was receiving a salary of \$3000. This was a modest income, but with strict economy he was able to make ends meet. By 1947 his salary had increased to \$3500; but because of the increased prices that then prevailed he could buy with the larger salary only as much as \$2240 would have bought him in 1940. This is a typical example of the difficulties in which salaried workers find themselves in a period of rapidly increasing prices.

The Case of the Wage Earner. Skilled artisans and common laborers are usually referred to as "wage earners," to distinguish them from salaried workers. The wage earner is often, though not always, paid on a weekly basis, and the income he receives is the result of frequent bargainings. In many instances, wage earners belong to trade unions, and wage agreements are drawn up by officials of the unions every year or two, or as often as every six months. As a consequence of these frequent bargainings over wages (which take place with unorganized workers also), the earnings of wage earners are more likely than those of salaried employees to keep pace with rising prices. Nevertheless, it is a fact, as may be seen by an examination of statistics, that increases in wages usually lag behind rises in prices. A wage agreement continues in effect, let us say, for six months; but during the six-month period prices may increase materially, and thus cause the wage earner to lose out to some extent so far as purchasing power is concerned. The point is expressed in the saying, "Prices take the elevator, while wages climb the stairs."

It should be noted, however, that the money incomes of certain classes of wage earners may at times rise faster than the cost of

living in periods of rising price levels. Government figures show that the cost of living in the United States as a whole rose only 7 per cent between August, 1939, and June, 1941, but the average weekly earnings of workers in ninety *manufacturing industries* increased 30 per cent in this period. These larger money wages are accounted for by greater regularity of employment, an increase in the length of the working week, by some workers "moving up from lower to higher paying positions as the defense industries called for increasing numbers of skilled and semi-skilled workers," and by some increases in *wage rates* due to the greatly increased demand for labor in essential defense industries.⁴ We see, therefore, that—in many cases at least—these larger earnings do not represent increased incomes for the same amount and the same grade of work. Moreover, the gains in real wages that come to some wage earners at the beginning of a period of rising prices may vanish fairly promptly, and even those who are thus specially favored are likely to lose out in the long run through the failure of their money wages even to keep pace with the mounting cost of living.

The Effects of Falling Prices. Our attention has been centered chiefly upon the results of *rising* prices, because increases in prices have particularly serious effects upon persons of relatively small incomes. When prices fall, the effects are the reverse, of course. Purchasing power, which has shrunk during the upward course of prices, expands again when prices are on the downward trend. It might be supposed that a balance would be reached in this way, but, so far as a given individual is concerned, there is no assurance that he will regain through falling prices anything like as much as he has lost through a rise in the price level. And it should be observed that, though salaried employees and wage earners ordinarily gain in times of falling prices if they hold their jobs, the fact is that unemployment is often painfully extensive at such times, as was shown during the period of declining prices and *increasing unemployment* in the post-1929 depression.

Business men who have goods to sell are usually gainers through advances in the price level, since their costs of production ordinarily do not increase so fast as the selling price of the finished product increases. As a consequence, business men sometimes welcome rising prices, since they feel that the gains made on the upgrade will

⁴ Cf. Meyer Jacobstein and Harold G. Moulton, *Effects of the Defense Program on Prices, Wages, and Profits*, Washington, Brookings Institution, 1941.

be greater than the losses that are incurred when prices again decline. This is a matter which we shall touch upon again in the next chapter.

PROPOSED SOLUTIONS OF THE PROBLEM OF PRICE LEVEL CHANGES

Because of the disadvantages of price level changes, such as we have outlined, attempts have been made to discover a remedy for what many consider a serious economic disorder. In general, the proposals have been of two kinds. First, plans have been suggested for lessening the evil effects of price level changes without eliminating the changes in price levels themselves; and, second, there have been proposals for stabilizing prices through the control of the circulating media (M and M').

The "Market-Basket Plan." One of the most interesting suggestions for avoiding the harmful effects of price changes is known as the "market-basket plan." The Philadelphia Rapid Transit Company used this plan for more than a decade to guarantee its employees a stable standard of living; but it was abandoned when this corporation was reorganized as the Philadelphia Transportation Company. The plan was designed to keep wages and prices always on the same level. Since the price level could not be controlled by the Philadelphia Rapid Transit Company, this company did what appeared to be the next best thing; namely, it increased wages as the price level rose, and decreased them as the price level fell.

The market-basket plan used an index number based on 184 articles that were in sufficiently "general use to influence accurately the changes in the purchasing power of the employee's dollar." Among these items were "rent, shirts, stockings, nut coal, kerosene, brooms, sewing machines, pork chops, gas, tobacco, quinine pills and haircuts." From time to time the articles used in making the index number were priced in the stores and markets patronized by P.R.T. employees. If, at the close of the year, prices were found to have varied as much as 5 per cent, the basic wage was changed to meet this variation. It was contemplated, therefore, that changes in wages would ordinarily be made only once a year; but a variation of 10 per cent or more for a period of three months was met by a corresponding change in money wages.

The purpose of the plan, as stated by the company, was "to assure to the employee and his family their present standard of living, in

bad times as well as in good." This did not mean that P.R.T. employees had no opportunity to improve their standard of living. Wages could still be increased, as before, by convincing the management that higher wages should be paid. The P.R.T. market-basket plan simply assured the employee that his standard of living would not be affected by such a force as fluctuating prices, which were wholly beyond his control.

There would seem to be at least two possibilities of serious trouble in operating a plan of this kind. If prices, and consequently wages, took a pronounced drop (say, to the extent of 20 per cent), it would probably be difficult to convince the employees that they were not being imposed upon. For the average worker finds it hard to understand that \$32 a week with a low price level means as much purchasing power as \$40 a week when the price level is higher. And if prices rose greatly (say, to double their base level), though the employee would surely not object to receiving \$80 a week in place of the usual \$40, it would probably be difficult for the company to secure sufficient revenue to enable it to advance wages to this extent.

Difficulties such as these were foreseen by the Philadelphia Rapid Transit Company when the plan was inaugurated, but the obstacle that finally emerged was of a somewhat different type. The decline in general prices that followed 1929 was accompanied by several P.R.T. wage cuts, based on their curve of falling prices. But in June, 1932, it was necessary (because of greatly reduced revenue resulting from the depression) to cut wages slightly below the point indicated by the price curve. In the face of this emergency, the market-basket plan was suspended temporarily. One year later, when both revenue and general prices had increased, the plan again went into active operation, with a rise in wages that brought the purchasing power of P.R.T. employees once more up to the level of pre-depression days, and continued to function until the company was reorganized.

Multiple Standard of Deferred Payments. A second plan for avoiding evil effects of price changes, which we shall not be able to examine in detail, relates to long-term credits. It is called the Multiple or Tabular Standard of Deferred Payments, and is similar in general principle to the P.R.T. plan. The idea is that debtors, in meeting their obligations, should pay creditors not the number of dollars but the amount of purchasing power they have borrowed. If, under this plan, \$1000 were borrowed in 1940 and repaid in 1947, the payment

would not consist of a mere \$1000 (which would buy in 1947 only as much goods as \$630 would have bought in 1940), but \$1587 (which in 1947 would buy as much goods as \$1000, the amount of money borrowed, would have bought in 1940).

Without going further into plans of this kind, it may be said that there would be numerous difficulties in the actual working out of such plans as we have reviewed. We have noted several of these difficulties. Still another is that of finding a thoroughly acceptable index for measuring price changes. It would appear that arrangements such as these are scarcely feasible so long as they are adopted by only a few persons or organizations.

The "Stabilized Dollar." Another attempt to solve the problem of changing prices is to stabilize prices through the control of the circulating media. One of the best-known plans of this type is usually referred to as the "stabilized dollar" or "compensated gold dollar," and has long been associated with the name of the late Professor Irving Fisher.

We can give here only the barest outline of the plan. We have seen that a rise in prices means a fall in the value of gold, and vice versa. Professor Fisher wanted a dollar that would always buy the same amount of goods, and he proposed to get it by increasing or decreasing the amount of gold in the dollar as prices showed a tendency to rise or fall.

The plan includes:

1. A monthly index number.
2. The removal of all gold from circulation, and the use of circulating media consisting only of gold certificates.
3. A variation in the amount of gold that a "gold certificate" will command at the mint, this variation corresponding to general price changes.

We may see how the plan would presumably work, by assuming that all money in circulation is represented by one dollar, and that the index number is 100. Now let us suppose that the index number rises to 110. This means, of course, that sellers of goods are no longer willing to exchange their products for the amount of gold contained in a dollar, but demand the amount of gold contained in \$1.10. Since gold is thus actually less valuable than it has been, a gold certificate called a "dollar" should command more actual gold than it formerly did. Professor Fisher's plan would make this literally true; the gold certificate presented at the mint when the index num-

ber is 110 would *in fact* command 10 per cent more gold than it commanded when the index number was 100.

And now, since the gold certificate does exchange at the mint for the amount of gold demanded by sellers for their goods, namely, 110 per cent of the former amount, it will readily exchange for the same amount of goods as before the rise in the index number took place; for sellers are now getting in each gold certificate the amount of gold they are demanding. In this way prices would forever remain unchanged, as expressed in gold certificates; or, more correctly, prices would always tend to fluctuate narrowly about the index number of 100.

Control of Credit by the Federal Reserve System. The most serious objection that has been raised to Professor Fisher's "stabilized dollar" is based upon the fact that most business today is transacted with credit and not with gold. While there is a relationship between the volume of credit and the quantity of gold, because of the existence of gold reserves on the strength of which credit is so largely issued, this relationship, according to some economists, is not sufficiently close to bring about the results that Professor Fisher predicted.

Consequently, it has been proposed by many students of the problem that prices be stabilized through the control of credit by the Board of Governors of the Federal Reserve System. Since at least 90 per cent of the business of the country is conducted on the basis of credit, this seems to be a logical spot for attack. Much of this credit, as was explained in earlier chapters, is extended through the rediscounting process provided by the Reserve System, which permits member banks to expand their credit by giving commercial paper as security.

We have seen also that the Federal Reserve System can encourage or discourage the rediscounting of commercial paper by lowering or raising the rediscount rate and in this way can control, to some extent at least, the amount of credit (or M') in circulation. If the price level shows a disposition to rise above what the Board of Governors regards as normal, an increase in the rediscount rate will tend to contract credit and bring the level down; and an increase in the reserves required by the Board against demand deposits will have a similar effect. On the other hand, a decrease in the rediscount rate will have the effect of encouraging an extension of credit and thus bring about a rise in the price level. But this is not the whole story,

for, as we have already seen, the Board of Governors may encourage or discourage the extension of credit by member banks, by lowering or raising the legal reserve rates for demand deposits, and by engaging in open-market operations.

Control of credit through the Board of Governors seems to offer the most thoroughgoing, and in some respects the best, plan that has yet been advocated for stabilizing the price level. But the task of controlling general prices through credit control would not be an easy one; on the contrary, it would involve the assumption of tremendous responsibility by the Board, and the necessity of meeting the objections of those whose individual interests would at times be threatened by measures adopted by the Board in protecting the interests of society in general. The level at which to stabilize would cause a terrific amount of controversy, as is evident from the criticism that was directed at President Roosevelt's proposal in 1933 to raise general prices before trying to stabilize them. We have already spoken of the problem of arriving at an index that would win general approval. As for evidence of conflict between individual and public interest, and of pressure that certain groups would attempt to exert upon the Board, we have only to refer to 1928 and 1929, when every effort of the Board to curtail credit was denounced by one group or another as a move which would discourage business.

Of course, the fact that a task is difficult of accomplishment is no adequate excuse for failing to undertake it, if the goal to be reached is really worth while. We are doing our best, in modern times, to lessen the uncertainties of life through such devices as insurance. The risks due to price fluctuations have been very great, and the consequences of general price changes have borne heavily upon many members of society. It would seem, then, that this element of hazard should, if possible, be eliminated—though this would mean the disappearance of a large part of business profits, which arise out of the uncertainties of economic life. That price fluctuations should be controlled was obviously the view of a group of Iowa bankers who, some years ago, passed the following resolution: "It is the self-evident duty of the [Board of Governors] to administer the Federal Reserve account in such a manner as will safeguard the nation from inflation and deflation in the future, and we heartily approve of sincere efforts being made to find and apply the best legislative method for safeguarding the purchasing power of money."

Wartime Control of Prices. The abnormal conditions that prevail when a nation is carrying on or preparing for war are almost certain to lead to a sensational rise in the price level. The precipitate rise in general prices from 1914 to 1920, and the post-1940 increase that accompanied the all-out war effort against totalitarian aggression, are cases in point.

The mobilization of a great modern nation for war requires huge governmental purchases of goods to be used by its military, naval, and air forces. It is likely to meet these unusual expenditures, in large part, by borrowing through the expansion of bank credit; and it may even find it necessary to issue paper money in large amounts. The consequence is an expansion of money or credit, or both, at a more rapid rate than the expansion of production. Business men borrow from banks so that they may expand greatly their purchases of raw materials, in anticipation of shortages or price increases. The fear of shortages and price increases may also cause consumers to spend their money incomes more promptly than usual and thus speed up the velocity of circulation. Moreover, the amount of these money incomes is larger than usual, for business men raise wages by competitive bidding for labor; and these wage increases add still further to the total quantity of circulating media. The whole situation is one in which there are many forces tending to push prices ever higher.

Wartime conditions seem to call for strict measures of control if the price level is not to get out of hand. The ideal solution would be to finance the war by means of taxation. If, for example, the government needed \$50,000,000,000 out of a \$125,000,000,000 national income for war purposes, it would be desirable, in many respects, to reduce *ordinary* production by that amount, levying taxes that would convert 40 per cent of the nation's production into the sinews of war. Since high taxes are always unpopular, it might be more expedient to adopt lower taxes and finance the war in part by means of enforced savings.⁵ In this event, the government would take over a portion of individual incomes, promising to return the amounts withheld after the emergency had passed. Yet another non-inflationary method of raising war funds is by selling bonds, provided of course they are paid for out of current (and not borrowed) income and are both non-exchangeable for economic goods and ineligible as a basis for making loans while the emergency lasts.

⁵ As proposed by the late Lord Keynes and others.

These methods of war financing have the special merit of transferring purchasing power from individuals to the government, reducing *ordinary consumption* by an amount equal to the increase in *war consumption*, and discouraging an expansion in the total volume of circulating media. If they were supplemented by the measures which the Board of Governors of the Federal Reserve System may employ in controlling the expansion of credit, and if the government abstained from the issuance of fiat money, it seems likely that the price level could be kept within reasonable bounds. Of course, the prices of some individual commodities (unless regulated by government) would rise in response to unusual conditions of supply and demand, the prices of war materials bought by the government might have to be set by governmental agencies to prevent them from skyrocketing, and rationing might be necessary to insure a fair distribution of certain scarce, essential goods among the populace. But the price level itself could probably be controlled sufficiently well to enable the country to avoid such grave injustices as have often been inflicted by the failure to control wartime prices.⁶

The fear of price inflation and its evil consequences led the Roosevelt administration to undertake to stabilize prices during World War II. To this end a program of price-control was launched in 1942. Taxes were raised substantially (but less than many economists considered necessary), war bonds were sold in large quantities (but they were bonds on which redemption was promised, if demanded), and prices were fixed on most commodities and many services. The weaknesses of these measures are apparent. Though large funds were withdrawn from circulation by higher taxes and the sale of bonds, there still remained in the hands of would-be buyers enough purchasing power to raise the price level disastrously, if allowed to exchange for the reduced quantity of consumers' goods and services that was available at competitive prices.

The element of competitive bidding was removed, to a large extent, by the action of the Office of Price Administration in establishing "ceilings" which set, for most goods, the legal maximum price that could be charged. Also, rationing was applied to certain scarce commodities, with the result that only limited quantities of these goods could be purchased. However, adjustments were made which per-

⁶ This problem is treated clearly and concisely in C. O. Hardy, *Wartime Control of Prices*, Washington, Brookings Institution, 1940, which has been especially helpful in the preparation of this brief statement.

mitted price increases on certain commodities, and the wages of labor were not fully stabilized. If the prices of some products are allowed to rise, they will almost certainly raise the level of general prices. If any wages are allowed to rise, the costs of production will likewise rise, and producers will face bankruptcy unless they are allowed to raise the prices at which their commodities and services sell. But if they are permitted to do this, the price level will be forced up and this increase will, in turn, be made the basis for appeals for new wage advances. It is not surprising, then, that, despite a substantial degree of *direct* control exercised over prices by the Office of Price Administration, the general price level crept up a dozen or so points between 1942, when fairly strict controls were first introduced, and 1946, when price control came to a virtual end through federal legislation and Presidential order.

Post-War Price Control. As was to be expected, the surrender of Germany and Japan brought demands from a number of industrialists and several strong business associations that price controls be abolished as of June 30, 1946, the date of expiration of the law under which these wartime controls had been authorized. It was urged that, with the war successfully concluded, it was high time to remove all restraints to production and to the right to set prices at whatever figures the traffic would bear. The typical argument of these opponents of price control was the one widely publicized by the National Association of Manufacturers, suggesting that the removal of price controls would lead to a prompt increase in production, with prices "adjusting themselves naturally—as they always do when production goes up—in line with the real worth of things. This is the way you can get the goods you want at prices you can afford to pay."

This prediction, in which relatively few academic economists concurred, was apparently accepted by the Congress, which so greatly modified the price-control legislation that the President decided that it was unworkable, and in late 1946 removed all controls except those affecting rents and a very few commodities. It is now clear that goods did not "pour into the market" with sufficient speed and volume to prevent a rapid and substantial increase in general prices, which, by September, 1948, had reached the all-time "high" cost-of-living index of 174.5 (1935–1939 = 100) and gave no signs of subsiding. It had been the hope of many economists that price controls would be removed gradually, so that the country might avoid the "boom" of

inflation which has in the past always been followed by the "bust" of depression. The extent of the price rise of 1946-48 and the subsequent development of considerable "buyer resistance" caused a good deal of anxiety even among those who had been most enthusiastic about the removal of O.P.A. controls, and who finally in some instances began to suspect that the soaring price level would indeed lead to depression, or at least to "recession."⁷

Conclusion. We must not close this discussion without noting the fact that some extremely able financial experts doubt the desirability of attempting, in time of peace, to control the general price level (because of economic disturbances which might result from such an attempt) and, further, seriously question the ability of the Board of Governors, or similar agency, to bring about a stabilization of general prices. On these two points, then, the final word has not been written. We cannot undertake, within the limits of a single chapter, to examine further the first of these two points. As to the second, it seems unlikely that we shall know definitely whether stabilization can be effected by the Board of Governors until we have given this body specific authorization to make the attempt, over a period sufficiently long to provide a fair trial. This we have not yet done.

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1. Distinguish between individual prices and general prices.
 2. What is the purpose of price index numbers?
 3. How and why are price index numbers weighted?
 4. Distinguish between a *general* index and a *wholesale commodity* index.
 5. What type of index is the one compiled by the United States Bureau of Labor Statistics and referred to in the text?
 6. What is the relationship between a general price index and an index of purchasing power, such as those presented in Table 15?
 7. How did the purchasing power of the dollar in 1915, 1920, 1925, and 1933 compare with its purchasing power in 1926?
 8. Write the equation of exchange, and explain the significance of each factor in the equation.
 9. Demonstrate arithmetically that a doubling of the quantity of circulating media (other things remaining unchanged) will cause a doubling of the price level.

⁷ "Even the National Association of Manufacturers, who had seen no danger of a wild price rise when the N.A.M. was axing the O.P.A. to death, was now worried. N.A.M. President Earl Bunting gloomed: 'If the constant upward winding of the spiral continues, you'll see one of the most terrible busts this country has ever had.'" (*Time*, April 7, 1947, p. 85.)

10. How does the introduction of credit affect the equation of exchange?
11. What is the Quantity Theory of Money?
12. What historical evidence have we that changes in M and M' may be responsible, in large measure, for changes in price levels?
13. "High prices and low prices are equally harmless, if only one or the other, once adopted, will 'stay put.'" Explain.
14. "Gains and losses are likely to occur whenever there is an extension of credit over a period of years." Why?
15. If a person borrows when prices are low and repays when prices are high, does he gain or lose by the change in price levels?
16. What are the effects of price level changes upon persons who are dependent upon fixed money incomes?
17. "Prices take the elevator while wages climb the stairs." Explain, in connection with price levels.
18. Is the "wage earner" or the "salaried worker" the more favorably situated when general prices are rising? When they are falling?
19. Are "business men" more likely to welcome rises or declines in general prices? Why?
20. What was the specific purpose of the "market-basket plan"?
21. Give a brief description of this plan.
22. What difficulties might arise in the operation of the market-basket plan in the event of extreme changes in prices, either upward or downward?
23. What is the central idea of the Multiple Standard of Deferred Payments?
24. Outline Professor Fisher's plan for stabilizing the dollar, and explain how, presumably, it would operate.
25. What, if anything, could the Board of Governors of the Federal Reserve System do to stabilize general prices?
26. Compare price changes from 1913 to 1920 with changes from 1920 to 1933.
27. Why do changes in the purchasing power of money present special difficulties in wartime?
28. Describe the measures adopted in the United States for the purpose of stabilizing the price level during the period of the second World War.

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15. *The Business Cycle*

In our examination of the purchasing power of money, in the preceding chapter, we saw that general prices sometimes undergo extensive changes over a period of years. We shall see in the present chapter that there are similar fluctuations in business activity. Indeed, the two are not unrelated; but our present concern is not so much with price changes as with changes in economic activity. Changes of the type we shall discuss are usually called business cycles.

THE NATURE OF THE BUSINESS CYCLE

"Business cycles are a species of fluctuations in the economic activities of organized communities. The adjective 'business' restricts the concept to fluctuations in activities which are systematically conducted on a commercial basis. The noun 'cycles' bars out fluctuations which do not recur with a measure of regularity."¹ This statement by a well-known authority is a satisfactory definition of business cycles, but it does not profess, of course, to be a description of these economic fluctuations. The nature of business cycles may be explained most clearly through the use of a chart indicating changes in industrial production.

A Chart of Business Activity. In Fig. 11 we have a graphic presentation of the business cycle as it is reflected in changes in the volume of industrial production.² Production may be counted upon ordinarily to increase in volume from year to year because of the demands of increased population. This growth is shown in Fig. 11 by a gradually rising broken line curve which shows that, on the whole, business activity has been increasing during the past thirty-five years. Had productive activities of the kinds here represented

¹ Wesley C. Mitchell, *Business Cycles*, New York, National Bureau of Economic Research, Inc., 1927, p. 468.

² Based on data of the Federal Reserve Board.

not experienced sharp fluctuations between 1918 and 1947, this trend curve would represent with a fair degree of accuracy the steady, continually growing volume of business transactions.

But a smooth, slowly ascending curve does not picture truly the productive activity of 1918 and 1947, or of any other reasonably long period, for that matter. For experience shows that business activity fluctuates from the general trend, now greatly and again but slightly. The extensive fluctuations, as we have said, are called business cycles. Referring to our chart, we note that, during this thirty-five-year

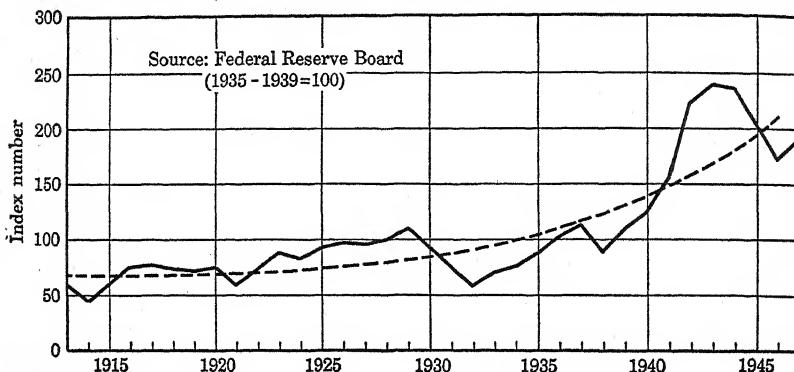


FIG. 11. THE BUSINESS CYCLE.

This chart shows fluctuations in business from 1918 to 1947, as indicated by a curve based on indexes of industrial production for these years.

period, industrial activity shifted a number of times from one side of the trend curve to the other. These are the shifts that constitute business cycles. History has repeated itself since the post-1929 business depression, for the curve of actual production (which in 1932 was below the trend curve) in 1943 again went well above this trend curve of production.

Length of the Business Cycle. Fluctuations in productive activity are sometimes great and sometimes small. There may be, in a single year, a number of minor fluctuations that cannot readily be shown on a small chart. Changes of this kind are of relatively slight significance. The business cycle proper covers a longer period than a year, and such fluctuations in business activity are much greater than those of any single year. The word "cycle," which has been so widely adopted in designating this particular economic phenome-

non, suggests not only (as is stated in our definition) that the fluctuations recur with a measure of regularity but, further, that there is a return to a position of business activity previously occupied.

Our chart shows, for example, that production was at a low ebb in 1914. Then came a rise in activity which in two years took production above the trend curve. Following this spurt of productivity, there were several years of minor fluctuations, with a serious slump in 1921 from which business did not recover fully for almost two years. In this recovery, however, a new height of business activity was reached by the middle of 1923. Business was good from 1923 to 1929, with the exception of rather minor depressions in 1924 and 1927, which are indicated by the decline of the production curve in those years. The peak reached in 1929 represented a new "high" for productive activity in the United States. Close upon this banner year came the post-1929 depression. The volume of production in 1932 was only about one-half as great as in 1929, but it then proceeded to increase steadily, except for the year 1938, until it reached the all-time peak in the war year of 1943, after which it suffered a decline when the abnormal wartime demand for goods subsided.

Thus we can see, without following further in detail the curve showing actual production during this thirty-five-year period, that the business cycle moves in wave-like motions. Not only does production tend to "come back" after it has suffered a recession, but the tendency is normally to strike a new high level of productive activity. This new level, we may once more note, is attributable largely to growth in population, but in part also to increases in individual demand, which presumably represent improvements in standards of living.

"Periods" of the Business Cycle. It is customary, in describing the business cycle, to refer to several well-defined periods or phases which appear to accompany these wave-like changes in business activity. They may be listed as follows:

1. The period of prosperity.
2. The period of liquidation.
3. The period of depression.
4. The period of recovery.

We shall examine these periods briefly, describing the effects of each upon industrial activity, prices, employment, and other elements that go to make up economic life. Table 16 is virtually an

outline of this description, since it gives in tabular form the characteristics by which the periods of the business cycle are marked.

The Period of Prosperity. The period of prosperity is one of great industrial activity. Prices are high and stocks of goods, called forth by the inducement of high profits, are large. In the period of prosperity there is plenty of employment for workers, and wages are naturally high. Nevertheless, strikes are not unusual in this phase of the business cycle, since the workers, knowing that labor is relatively scarce and that business men are doing well, are likely to insist upon wage increases. Business failures, of course, are at a minimum,

TABLE 16. CHARACTERISTICS OF THE BUSINESS CYCLE

	Period of Prosperity	Period of Liquidation	Period of Depression	Period of Recovery
1. Industrial activity.....	Maximum	Decreasing	Minimum	Increasing
2. Prices.....	High	Falling	Low	Rising
3. Employment.....	Maximum	Decreasing	Minimum	Increasing
4. Wages.....	High	Falling	Low	Rising
5. Strikes.....	Many	Many	Few	Increasing
6. Business failures.....	Few	Increasing	Many	Decreasing
7. Bank deposits.....	Large	Decreasing	Small	Increasing
8. Bank reserves.....	Low	Increasing	High	Decreasing
9. Interest rates.....	High	Falling	Low	Rising

for this is a time when business men of even ordinary ability can make good profits.³

The items thus far mentioned relate to the manufacturing and commercial side of business, as contrasted with the financial side. So far as finances are concerned, there is a great expansion of bank credit during the period of prosperity. On this account, bank statements are frequently unsatisfactory; that is, they show small reserves, owing to the fact that banks have expanded credit greatly in response to the demands of business men. Because there has been a large expansion of credit and bank reserves are low, interest rates are usually high in the period of prosperity.

The Period of Liquidation. The period of liquidation is very unlike the period of prosperity upon which it follows, sometimes with appalling suddenness. In this phase of the business cycle, industrial activity is definitely curtailed and on the downward trend. Stocks of

³ But even in periods of prosperity, the number of business failures is startlingly high, as may be seen by reference to figures given in chap. 9.

goods that have piled up during the preceding period are larger than can be disposed of readily, and as a consequence prices decline. For the same reason, and sometimes for other reasons which will be explained later, there is likely to be a good deal of unemployment. Unemployment means falling wages, since it permits the employer to replace present workers with others at lower figures, if employees will not take wage reductions. Nevertheless, workers, in the effort to maintain their wage scales, are not unlikely to go on strike to resist wage decreases, so that strikes are numerous in this period. Business failures are, of course, much more common in times of liquidation than in times of prosperity, and over a considerable stretch of time they become increasingly numerous. This, of course, is as we should expect it to be, for the period of liquidation is "settling up" time, when concerns that cannot meet their obligations are forced into bankruptcy.

Turning to the financial side of business, we find that bank credit is in process of contraction in periods of liquidation, since there is a tendency on the part of banks to call in their loans. This means increasingly larger reserves in the possession of the banks, so that bank statements are more satisfactory than in the period of prosperity. Because of the demands of business concerns for credit and the hesitancy shown by banks in extending credit at this time, interest rates are likely to be high, though in the process of falling.

The Period of Depression. Following industrial crisis comes the period of depression, during which industrial activity is at its lowest ebb. Because there is a small demand for commodities, prices of goods also are at their lowest. Since the demand is so slight, merchants and manufacturers are able to fill orders from stocks of goods which have been held over from the previous periods, and these stocks are depleted but slowly. The absence of extensive orders and the existence of sufficient stocks on hand make it unnecessary to keep industrial plants running, and as a consequence there is much unemployment.

Employers find it possible, during a period of depression, to force workers to take reductions in wages. Though there is a temptation to resort to strikes in order to resist wage reductions, the workers who have employment, realizing the weakness of their bargaining position and anxious to retain their jobs, usually accept whatever terms are offered by the employers; hence there are few strikes in time of depression. This is a most difficult period in which to conduct

business. Some of the less capable enterprisers are unable to survive this trying period, and business failures are numerous.

Since business is simply marking time, there is little call for bank credit, and borrowings by business men are at a minimum. Former loans have been repaid, and bank statements are favorable, showing large reserves in relation to the amount of credit outstanding. The existence of these large reserves makes bankers eager to place loans, and this eagerness is manifested in low interest rates. But despite their willingness to use their resources profitably, the bankers often exercise in the period of depression an excess of caution with respect to eligibility of loans, which prevents borrowing by those who could use bank credit legitimately and advantageously. This undue caution is a hang-over from the period of liquidation, when banks have found it difficult and oftentimes impossible to collect the amounts due them.

The Period of Recovery. Business depression fortunately cannot last forever, but gives way to a phase of the cycle known as the period of recovery. The wheels of industry begin to turn once more, in order to make goods necessitated by the depletion of stocks which have gradually been purchased even in time of depression. Increased demand brings with it a rise in prices, and the prospect of good prices leads to industrial activity which soon results in a fair-sized stock of goods. Unemployment begins to disappear, since mines, mills, and factories cannot be run without workers. Wages, which had been low in the preceding period, show an improvement; and wage earners, glad to find steady employment once more, manifest but little disposition to call strikes at the outset of the period of recovery. However, strikes increase in number as business continues to improve and workers seek to regain the wage losses suffered during the depression. Business failures are much less common than during a period of depression; the number of bankruptcies declines steadily in this and the following period.

Now that business is improving, business men resume once more the practice of borrowing, and there is an increase in bank credit. This means, of course, that the expansion of credit by banks appears in bank statements, and the reserve percentages decline steadily as loans increase in volume. Since bankers now have plenty of opportunities to lend out funds, there is no need to offer the inducement of low rates of interest; consequently, interest rates rise during the period of recovery because of the expansion of bank credit.

The cyclical nature of business fluctuations is indicated by the fact

that the period of recovery is followed by a period of prosperity. Thus we are brought back to our original starting point; but the height of industrial activity in this return is likely to be greater than in the preceding period of prosperity. Referring again to Fig. 11, we may note once more the great irregularity in business activity indicated by the now-rising, now-falling curve of production. It is evident, however, that the level of industrial production reached in each period of prosperity is higher than that attained in the preceding cycle.

AN EXPLANATION OF THE BUSINESS CYCLE

Much attention has been given in recent years to the study of business cycles, and a number of students of this economic phenomenon have undertaken to set forth the causes of business cycles. Some of these explanations are extremely ingenious and interesting, but cannot be given here owing to lack of space.⁴ We must content ourselves with presenting what many people regard as the most plausible of these theories, and probably the one most widely accepted by students of economics. This is the "self-generating theory," which is commonly associated with the name of Professor Mitchell, although other economists have contributed to the theory either by developing certain phases of the explanation or by adding to its popularity through clarity of exposition.

According to the self-generating theory, "business cycles run an unceasing round, each cycle growing out of its predecessor and merging into its successor."⁵ Not only does each business cycle grow out of its predecessor, but each period of each cycle is the result of certain causes that have developed in preceding periods of the cycle. These causes are of three types—industrial, financial, and psychological. We may see their influence by reviewing once more the four phases of the business cycle.

Prosperity and the Trend Toward Crisis. The period of prosperity, as we have noted, is one in which business is booming. It is, among other things, a time of progressively higher prices. Rising prices mean large profits for business men. Goods are produced in anticipation of demand, and if prices are increasing steadily, com-

⁴ They are dealt with in detail in Gottfried von Haberler, *Prosperity and Depression*, Geneva, League of Nations, 1937.

⁵ W. C. Mitchell in *The Stabilization of Business*, edited by Lionel D. Edie, New York, The Macmillan Company, 1924, p. 14.

modities may be disposed of at figures that are often considerably in excess of the costs of production. For the selling price of goods in a period of rising prices will tend to be the cost of production of such goods at the time at which the sale is made. This price may be considerably greater than actual cost in a period of rising prices, since there have gone into the making of the commodity in question raw materials and labor purchased some time before the sale of the finished good, and purchased therefore at relatively low prices. Moreover, interest charges, salaries, and certain other items of expense almost never keep pace with rising prices. The net effect of these conditions is that profits are large when prices are on the upgrade.

Since business men are anxious to reap these high profits, they make every effort to expand production in times of rising prices, and on this account stocks of goods, employment, and wages are usually at their height in a period of prosperity. The truth is that toward the end of this period the industrial bubble is about ready to burst. Expansion in the production of goods is matched by an expansion in financial activity. The one, of course, has given rise to the other, for bank credits are expanded to their limits only when business is or has been booming.

The psychological attitude during the greater part of the period of prosperity is one of optimism. Business men, since they are making large profits, are naturally optimistic. But there comes finally a time when this optimistic attitude may be assumed rather than real. Captains of industry sometimes whistle to keep up their courage. Though they wish for and talk much about continued prosperity, they begin sooner or later to be fearful that the peak of industrial activity has about been reached. They know from experience that business activity runs in cycles and that periods of prosperity are followed by industrial crisis and depression. With the boom fully expanded, and with doubt and uncertainty in the air, it sometimes requires only a slight jar to change the period of prosperity into one of industrial crisis and liquidation. Sometimes, as in 1929, this jar appears in the form of a crash in the stock market.

Crisis, Liquidation, and the Beginnings of Depression. It is possible that in one or more lines of manufacturing there has been too great production during the period of prosperity, owing to the desire of business enterprisers to make large profits while prices are high. There may be, for example, an overproduction of automobiles, or radio sets, or some other article manufactured on a very large scale.

When sales fail to keep pace with production, the natural tendency is to curtail production. An over-stock of automobiles may easily result in the closing of the plants of one or more of our leading automobile manufacturers. An action of this kind throws out of work many thousands of wage earners. Not only is the purchasing power of these workers reduced, with a consequent depressing effect upon other industries, but a move of this kind is interpreted by many other business men as a sign that the period of prosperity has come to an end.

Other manufacturers decide upon a curtailment of their productive operations. Merchants having large quantities of goods on hand offer them at lowered prices in order to reduce their stocks and obtain funds. Manufacturers, now unable to sell at former high prices, demand that workers submit to reductions in wages. In the effort to resist wage cuts, employees resort to strikes, and again purchasing power is curtailed. Bank credit, which had been stretched to the utmost, is now contracted, for bankers, in view of the unsatisfactory industrial conditions, are anxious to call in their loans. But business men find it difficult to meet their financial obligations as these loans are called. In their effort to secure the necessary funds, manufacturers and merchants sacrifice stocks of goods on hand, and offer to pay high rates of interest for loans that will tide them over the emergency. Despite their best efforts, many are unable to weather the storm, and go down in bankruptcy.

The mental attitude of business men during the period of liquidation and in the early stages of depression is naturally one of doubt and fear. Not knowing what the immediate future will bring forth, but looking forward to some months of poor business, they hesitate to put into execution whatever projects they may have had in mind during the period of prosperity; and this lack of action leads definitely to the state of inaction, sometimes long drawn out, that is known as the period of depression.

Depression and the Move Toward Recovery. This period, as we noted in an earlier description, is one that finds business virtually flat on its back. Tendencies which were apparent in the period of liquidation have been allowed to run their course, with the result that production has come almost to a standstill. The psychological atmosphere of the period of depression is one of extreme pessimism. With business in a state of suspended animation, no one seems to know just what steps should be taken to bring it back to life. And

yet, if the self-generating theory is sound, it is in this very condition of business prostration that the causes which lead to the next phase of the business cycle, the period of recovery, must be sought.

Recovery and the Causes of Prosperity. It is probable that the starting point of revival is usually the exhaustion of stocks of goods. It may be that the surplus of automobiles, which we suggested as bringing to an end the period of prosperity, has slowly been disposed of, and that there is again a demand for cars which will be available only if automobile plants resume production. An announcement from the Ford Company or the General Motors Corporation that operations are to be resumed and employment given to a hundred thousand men would stimulate activity in businesses of all kinds.

Such an announcement would appear to many to herald the turning point of the tide. It is the final word for which the less venturesome have been waiting. Enterprisers throughout the country again take heart, and factories here and there resume operations or, in some cases, go on "full time" after a period of curtailed production. Workers are available at low wages at the outset of this period, materials may be had at bargain prices, and banks, because of their large reserves, are anxious to extend credit at moderate rates of interest. These particular advantages are likely to disappear as the revival of business makes considerable headway. That is to say, wages increase, interest rates rise, and other expenses advance as production assumes normal proportions. However, the attitude of business men is now one of increasing courage and optimism as regards the future. It is felt that the "slough of despond" has been passed, and that the months ahead hold bright prospects.

The process of recovery may be a relatively slow one, but in the course of a year or so machines are once more humming and the business cycle passes by almost imperceptible steps into the period of prosperity. Thus we find that in each of these several phases of the business cycle are the conditions that almost inevitably bring about the succeeding phase.

THE STABILIZATION OF BUSINESS

It is not suggested that the self-generating theory of business cycles provides a complete explanation of this economic phenomenon. Professor Mitchell himself, who has done more than any other writer to popularize the notion that business cycles are self-generating, admits

that many other theories of business cycles have in them much of truth.

The Need for Stabilization. But whatever the exact causes may be, it seems fairly clear that society would be better off if fluctuations in business activity could be avoided, or at least made less violent. For these fluctuations bring uncertainty and fear; gains to some and losses to others; overexpansion of production in times of boom and bankruptcies in periods of liquidation and depression; unemployment and consequent loss of income to workers; and other results which disturb and interfere with economic well-being.

Why, then, are these sharp fluctuations in business permitted to take place? Why, having lived through the various phases of the business cycle, including those distressing periods of liquidation and depression which necessitate the extension of public relief on a large scale, do not the persons affected determine to correct the situation, so far as the future is concerned, by removing the conditions that are responsible for wide variations in business activity?

Delays in Seeking a Solution. There are several possible answers to questions of this nature. It appears, in the first place, that interest in the control of business fluctuations, as in the abolition of war, depends largely upon the urgency of the situation. When the hardships of business depression or of war are being experienced, the need for preventing the recurrence of such catastrophes is generally recognized, but those affected are so busily occupied with meeting the immediate emergency that they give little thought at the time to devising preventive policies for the future. When the emergency has passed and the period of recovery or reconstruction has set in, the demands of the present again loom up as all-important; and, since corrective measures have not been adopted, the forces that formerly brought disaster are again allowed to run their course, and before very long another crisis is imminent.

Wage Earners and Business Stability. For more than a century we have had these ups and downs of business activity in the United States; and in this hundred-year period the country has experienced at least a dozen major cyclical movements in business activity, as well as many minor fluctuations. Among those who are hardest hit by reason of recurrent periods of unemployment are the wage earners of the country. And yet the wage-earning groups have done little or nothing to bring about stability of business and regularity of employment.

Indeed, organized labor has shown no real appreciation of the desirability of preventing business fluctuations. Labor leaders have spoken largely in terms of alleviating the unpleasant consequences of the depressions that are thrust upon them. They have favored the lessening of unemployment by reductions in hours of labor but not in pay, and by the extension of public works projects; and, in especially dark days, they have indorsed liberal public relief allowances for the involuntarily idle. But these are palliative and not preventive measures.

Wage earners have been severely criticized for their "stubbornness" in resisting wage cuts in time of crisis, liquidation, and depression. Their answer is that to take cuts would be to give up wage increases that were won through years of bargaining, and which once lost would not be easily regained. Though they accept willingly the larger incomes that come to them in periods of prosperity, they disclaim, and with some reason, responsibility for the depressions that follow. Wage earners, they say, are in the position of having to take orders; it is the business men of the country, the enterprisers, who are in position of authority which enable them to determine the pace at which business shall proceed.

Business Leaders and Business Statistics. Whether our business men can be convinced of the desirability of controlling production so that it may not expand unduly and in the course of time bring the inevitable reaction, remains to be seen. We have noted that the period of prosperity is one of large profits, and it is questionable whether the average business man would willingly curb his desire for immediate profits merely because of the likelihood that excessive business expansion will be followed by a period of economic stagnation. Even if he were disposed to prevent production from exceeding the limits of safety, it would often be difficult for him to know when the limits had been reached.

It is true that there are the business records of previous years from which may be learned something of the likely trends in the future. But no two business cycles are exactly alike. It was thought for some time that these wave-like movements of business activity lasted about ten years from beginning to end; and at least two interesting theories were built upon the notion of periodicity. It has been found, however, that business cycles vary in length; and prior to 1929 some economists held that the cycles were becoming shorter all the time. Moreover, the phases or periods of one cycle are oftentimes quite different from

those of another cycle. A depression, for example, may last only a few months, or it may extend over a year or two, or even over a half-decade or more as in the case of the post-1929 depression. As a result of these irregularities, enterprisers who might wish to avoid an unwarranted expansion in production are often puzzled to know at just what time expansion should be restrained.

The interest of business men in gaining knowledge of this kind is manifested in the growth of agencies that make statistical studies of business activity, and on the basis of their data undertake to forecast business conditions in the future. Work of this kind is improving in quality and increasing in popularity, and it seems probable that business men may eventually have placed before them information that will be of genuine assistance in reducing the violence of changes in economic activity.

Stabilization and the Federal Reserve System. There are many persons who think that the Federal Reserve System should extend its powers and attempt to prevent overexpansion of business by discouraging borrowing whenever economic activities seem to have reached the limits of safety. One of the characteristics of the period of prosperity is a great increase in the volume of bank credit, without which there would be less of a business boom. This expansion of credit is possible because the commercial banks that are members of the Federal Reserve System are themselves able to get an extension of credit through the rediscounting of commercial paper.

If the Board of Governors of the System, following its traditional policy of seeking the public welfare, should raise the rediscount rate gradually (and if necessary, drastically) whenever a further increase in business appeared to be undesirable, it would seem that this advance in the interest charge might discourage further extension of credit and thus check unwise business expansion. And if, at the same time, the Federal Reserve banks should engage in selling securities in large quantities, this type of open-market operation, as we pointed out in an earlier chapter, would have a tendency to make the member banks less liberal in their lending to customers. And if, finally, the Board of Governors should raise the reserve requirements against demand deposits, it is very likely, indeed, that credit expansion would be discouraged.

An attempt of this kind on the part of the Board of Governors would doubtless call forth protests from a great many business men. There would be objections from those who would question the ability

of any board to decide rightly the proper time at which to discourage borrowing, and from others anxious to reap large profits even at the expense of business expansion which might eventually lead to depression. Indeed, the Board followed an "easy money" policy—with low discount rates and large open-market purchases—for several years prior to the debacle of 1929, largely because business men protested against any suggestion that the flow of credit should be checked. Some critics charged that the Federal Reserve System permitted excessive credit to get under way, and was then unable to check it.⁶ But the blame for this undue extension of credit should not be placed upon the Board alone. Surely a part of the responsibility lies with the business men, bankers, and economists who talked about the economic "new era" that had been reached, and insisted that business must not be discouraged. Furthermore, it should be remembered that the Board has never had a clear-cut mandate to attempt to regulate the volume of business through the agencies of control at its command.

It seems probable that much could be done to control business expansion and contraction through the measures we have described, provided the task was undertaken before we had moved too far from the "trend" curve of production. On this point we cannot speak with absolute assurance, since no adequate trial has yet been made of this method of regulation. If it should be found that the volume of business transacted in the country can be controlled effectively by these means, there would be need for absolute confidence in the integrity and disinterestedness of the members of the Board of Governors. For interference with business processes, which might affect seriously the fortunes of certain individuals, could scarcely be justified except on the ground of a genuine benefit accruing to society through the regulatory action of the Board. It is obvious, as was pointed out in the preceding chapter, that the *indirect* controls provided by the Federal Reserve System cannot be expected to prevent the inflation and depression which threaten the country when it is flooded by such a huge volume of liquid assets as was in the hands of individuals and business concerns in 1946-48.

Price Control and Stabilization. Professor Fisher has emphasized the close relationship that exists between steadily rising prices and the undue expansion of business. He has even gone so far as to

⁶ Cf. W. H. Steiner and E. Shapiro, *Money and Banking*, New York, Henry Holt & Company, Inc., 1941, 2nd ed., p. 742.

suggest that if we could stabilize prices, we should do away with the strongest temptation to expand business beyond the safety point. For undue expansion, he says, results from the knowledge that abnormally large profits may be made in times of rising prices. If this theory is sound, then the control of the amount of credit by manipulation of the rediscount rate might have a stabilizing effect upon, first, the price level, and second, the desire to expand business.

It would appear that an increase in the rediscount rate at the "proper moment" might be expected to affect the situation in two ways. First of all, it would tend to stabilize prices and thus put an end to exceptional profits; and it would, moreover, discourage an increase in credit available for the use of business men, and thus tend to hamper the further extension of business activities.

Stabilization Through Public Works. Another suggestion that has been offered for lessening the violence of fluctuations in business is the development of public works at times when private industry is depressed. The construction of roads, bridges, public schools, courthouses, post offices, and many other kinds of public buildings might often be undertaken to relieve periods of business inactivity. Some forms of public work, no doubt, must be attended to without delay. It would seem foolish, for example, to wait for a business depression if the construction in question were that of a school building, and if delay meant inadequate facilities for a number of years.

But there are many kinds of public construction that could just as well be carried on when industry in general is inactive and workers by the thousands are seeking employment. This, indeed, appears to be the sensible time at which to build public works, if only from the point of view of expense; for bridges may be built and roads constructed at a much lower cost in periods of depression than at times of industrial boom. In the past, our practice in this respect has been to ignore almost wholly the possibilities of building public works at low prices and at the same time providing workers with a much needed opportunity to secure income through the performance of useful service.

If municipal, state, and federal officials were authorized to give due regard to industrial conditions in the placement of large orders, and if they exercised this authority wisely, something could be done to alleviate the suffering that so often accompanies industrial depressions. But we must not overestimate the aid to be had from this source. Professor William N. Loucks, who has studied public works

in their relation to business depressions, estimates that if federal, state, and local public construction were planned so as to be executed in times of depression, probably on the average about 10 per cent of our present total volume of unemployment might thus be absorbed.⁷ Public works, properly timed, could therefore be employed for lessening somewhat the severity of depressions and relieving unemployment during these periods, but they clearly do not constitute either a preventive or a cure for depressions.

Nevertheless, the United States government made huge appropriations for the construction of public works during the post-1929 business depression, partly, it would seem, for the purpose of providing work for some of the unemployed, and partly with the thought of stimulating business in general through a substantial increase in the total volume of business transactions. It was estimated by a Senate commission that federal expenditures for relief purposes, in the five-year period from 1933 to 1937, aggregated more than \$14,000,000,000, much of which was for public works projects to be carried on in various parts of the country. Unfortunately, it is impossible to measure the extent to which unemployment was allayed and business stimulated by this great expenditure of public funds. Nor does this emergency spending throw much light upon the possible benefits to be realized through the operation of a thorough-going, well-coordinated, continuous program of public works which aims to promote the stabilization of economic activities.

Proposals for Reducing Unemployment and Relieving the Unemployed. Many other suggestions for the stabilization of business have been offered. The provisions of the Social Security Act, relating to unemployment benefits for those who are involuntarily out of work, were noted briefly in Chapter 9. It is believed by some students of the problem that the cost of unemployment insurance might serve as an incentive to employers to stabilize their individual businesses, keeping production adjusted to a more uniform pace from month to month and year to year. However, this would likely be true only if the premiums charged were related to the volume of unemployment in a given business establishment, with low premiums for those who have but little unemployment. If the rates paid were dependent upon the frequency of the periods of unemployment and the duration of such periods, it would appear to be to the best inter-

⁷ Charles F. Ross, editor, *Stabilization of Employment*, Bloomington, Indiana, The Principia Press, Inc., 1933, pp. 103, 104.

ests of employers to iron out the inequalities in their production curves and attempt to avoid serious business fluctuations.

Still another proposal relates to providing jobs for men who are thrown out of employment in times of business depression. The several states, with the assistance of the federal government, have established public employment agencies for the express purpose of securing employment as promptly as possible for workers who are laid off in time of business depression. It would seem that there is room for a further development of agencies of this kind for putting unemployed workers in touch with employers who, even in periods of depression, sometimes experience difficulty in finding exactly the men they need to fill certain jobs.

But since there is no immediate prospect of eliminating business depressions and wiping out unemployment, and since (as we pointed out in Chapter 1) human needs are ever-present irrespective of the means of satisfying them, society as a whole must be prepared to relieve the suffering proposed by involuntary idleness. At the outset of the post-1929 depression, President Hoover urged that relief be handled through "neighborly giving." There was considerable feeling on the part of many that the state, as such, had a responsibility in this matter; and as the depression wore on and private agencies of relief proved unequal to the task, both state and federal governments were called upon to contribute the hundreds of millions that were required to prevent hardship. The extensive grant of public aid to the unemployed was something of a new departure, but this method of handling relief is likely to be used widely in future depressions, since it appears to represent an advance over private charity in several respects. It seems, first of all, to be the only way of getting promptly the large amounts required to rob a great depression of the threat of starvation. Second, it distributes the burden of relief more equitably than private charity, by securing funds by means of taxation and presumably on the basis of ability to pay. Finally, it smacks less of charity than private giving, and at least implies an acknowledgment, on the part of the government, of responsibility to provide for the involuntarily unemployed who are idle not because of laziness but because society has failed to develop an economic order in which every man who is capable of doing productive work can find a job.

The Problem of Incomplete Liquidation. This chapter must be brought to a close without the presentation of a cure for business depressions; for, humiliating as the confession is, it must be admitted

that there is no certainty that business men, statesmen, or economists have as yet found the cause of or the remedy for the cyclical changes in business activity which we have been discussing. It would appear, however, that in at least one respect the post-1929 depression was handled unwisely. Mr. Hoover began, and Mr. Roosevelt continued, the policy of lending financial aid to business organizations that were in trouble, hoping to enable them to stave off bankruptcy and continue in business. What was apparently overlooked was the fact, often pointed out by economists, that a thorough-going liquidation is probably the best basis upon which to build prompt and sound recovery.

When businesses go into bankruptcy and are thus completely liquidated, society does not ordinarily lose the productive capacity of these businesses. What happens is that the businesses are usually reorganized, sometimes passing into new hands, but in any event with readjustments made in certain costs which enable them again to produce and sell goods, even though the selling prices of their products have dropped materially with the decline in the general price level. No business can be expected to renew operations or to go once more on a full production schedule unless there is a prospect of at least covering the costs of production. But in some instances that prospect has been eliminated by the loan of government funds, which has allowed concerns to avoid liquidation and thus to escape the compulsory readjustment of costs of production, so that for months or years profitable operation has been out of the question.

Liquidation has been likened by some writers to a surgical operation—unpleasant to contemplate, to be sure, but sometimes necessary if the patient is to regain his health and strength. Some of our American business concerns have been dosed with palliatives, which are easy enough to take but do not seem to have been the type of treatment indicated by the seriousness of their ailment. Enforced liquidation is hard on those who have capital invested, since it means that they must take losses, but the failure to liquidate is hard on all members of society if, as seems probable, it means a delay in moving onward to the period of recovery. Following a policy of "painless depression" for capitalists may be an exceedingly painful procedure for everyone else.

The Possibility of Recovery Through Inflation. A possible alternative to liquidation is what is sometimes called "inflation" and again "reflation," which means a general upward movement of the

price level until it reaches a point at which prices are again at least high enough to permit liquidated concerns to make goods and, despite their high costs of production, sell them to advantage. This appears to have been the plan in the mind of President Roosevelt, but after his first inauguration in March, 1933, general prices did not reach the 1926 level until forced up by war conditions in 1941. There are many observers who believe that such a rise in general prices, *especially if brought about through the issuance of large quantities of paper money*, would be far more painful to society in general than a complete liquidation of businesses that have been bolstered up by government loans. For inflation of this type, once well under way, is difficult, if indeed not impossible, to stop, and might lead to an intolerable rise in prices such as was experienced in Germany following World War I.

Even when the stage is all set for an extensive inflation of credit, it is by no means certain that the actors—the business men and bankers—will consent to play the part of puppets in the proposed drama of rising prices.⁸ If the President were empowered to print unlimited quantities of fiat money, there would be no question of his ability to send prices up speedily and to lofty heights; but that power has not been granted him, and would probably not be exercised if he had it. In the absence of thorough liquidation on the one hand, and of inflation on the other, business recovered but slowly from the post-1929 depression, since there was only a limited demand for goods at prices which were sufficiently high to cover costs of production. The huge demand for war supplies to carry on World War II provided the impetus which moved the country definitely into the period of economic prosperity.

THE THEORY OF FULL EMPLOYMENT

We must not end the present chapter without discussing briefly a program for combating depression that has won many adherents among economists and others, more particularly since 1936 when the late Lord Keynes published his now famous work, *The General Theory of Employment, Interest, and Money*.⁹ In this book, Keynes

⁸ See, in this connection, R. A. Young, *The New Monetary System of the United States*, New York, National Industrial Conference Board, 1934.

⁹ John Maynard Keynes, *The General Theory of Employment, Interest, and Money*, New York, Harcourt, Brace & Company, Inc., 1936.

presented the results of a study of unemployment which had been engaging his attention for some years.

The Keynesian Approach to Unemployment. The "Keynesian approach" to the problem of business depression, and the unemployment which inevitably accompanies it, may be described in a greatly simplified form, as follows: Production of the commodities and services which are turned out in a given period involves the expenditure of sums of money in the form of costs of production. To the persons to whom the payments are made, this *expenditure* constitutes *income*. Furthermore, the amount of expenditure and the amount of income are necessarily equal, for what is expenditure to the payers is income to the receivers. If all of this income is spent promptly, it will provide the funds for financing an equal amount of production in the *following* period—and this is true regardless of whether it is spent for consumers' or producers' goods. If more than this amount is spent, having been added to from other sources, production in the ensuing period will be stimulated. But if less than the total income is expended, through hoarding or some other type of withholding of purchasing power, production will be depressed, it will reach a smaller total than in the previous period, and unemployment will result.

"Offsets" to Savings. We saw, earlier in the chapter, that depression follows close upon the heels of cumulative prosperity, which means that a high level of employment and income gives way to a low level of both employment and income. The Keynesians maintain that the business boom, which brings a rise in national income, brings increases also in most individual and family incomes, and that under these conditions, "billions of dollars . . . are saved each year because people have incomes in excess of their consumption needs, because of a desire for personal security, because of power considerations or greed, because of automatic institutional arrangements, and for a thousand other reasons. It is irrelevant whether the process is deliberate or unconscious, whether prudence and thrift are involved or greed and lust, whether or not there is pain and abstinence. The desire to accumulate is a social *fact*, to be taken as such. And whatever might or might not be true of a Robinson Crusoe economy, it is clear that in modern societies individuals save regardless of the magnitude of investment outlets. Even if no new securities were floated, attempts to save would continue; and if old securities were not available, it would still be possible to accumulate non-interest-

bearing assets in cash."¹⁰ It must be remembered, of course, that in addition to individual and family savings are the savings of business enterprisers. It is the withholding of *all kinds of savings* from the expenditure stream that leads to a reduction in production and an increase in unemployment, unless these savings are offset in some way. The normal offset to savings is investment by the savers or their agents; but in the absence of adequate private investment other offsets must be found.

Granted that large sums out of the total income that was produced in the preceding period are withheld from current expenditure, it would seem to follow that the deficit must be made up if the volume of forthcoming production is not to decline. It is the failure to make up this deficit that turns prosperity into depression, and full employment into unemployment. To insure the continuance of full employment, and the avoidance of depression when total expenditure for consumption and investment is inadequate, other funds must be found which will offset the amounts saved, and thus bring the total amount expended up to its former high level. Only in this way can production, and consequently employment, be kept from declining. Though there are a number of possible offsets to these savings,¹¹ the one that bulks largest in the program of the Keynesians is governmental spending.

The Government's Rôle in Providing Full Employment. Up to this point, we have purposely omitted any mention of governmental spending, though it is obvious that expenditures by government often play a very important part in stimulating or maintaining production and employment, and it is in governmental spending (national, state, and local) that the Keynesians find the remedy for oversaving. We have seen that income, once received, may or may not be returned promptly to the expenditure stream. It is proposed that, whenever there is a deficit in expenditure such as we have described, the government shall undertake (through its taxing and borrowing power) to supply the funds that are required to bring the total expenditure up to the amount needed to provide full employment.

This does not mean that the government itself would go into business by becoming a producer of goods, but rather that it would

¹⁰ Paul A. Samuelson, in *Postwar Economic Problems* (Seymour E. Harris, ed.), New York, McGraw-Hill Book Company, Inc., 1943, pp. 36, 37.

¹¹ *Ibid.*, pp. 40-46.

finance the purchase of desirable goods on a sufficiently large scale to take up the slack which would otherwise result from the failure of a considerable portion of the *income* to be converted promptly into *expenditure*. "Private business can and will do the job of production," says Professor Hansen, a prominent advocate of governmental spending for the maintenance of employment. "It is the responsibility of government to do its part to insure a sustained demand. We know from past experience that private enterprise has done this for limited periods only. It has not been able to insure a continuous and sustained demand. The ever-increasing gigantic powers of production of the modern industrial system, far exceeding those of any earlier experience in history, mean that an enormous output has to be reached before full employment is approached. Private industry and government together must act to maintain and increase output and income sufficiently to provide substantially full employment.¹²

The Meaning of Full Employment. Some opponents of governmental spending to provide work have debated at considerable length the meaning of "full employment," and argued that even in periods of peak production there has always been and will continue to be some unemployment. We have been reminded that there are unemployables, who either are incapable of doing work that the world wants done or for temperamental or other reasons simply find it impossible to hold jobs; and that among our able workers some are always out of work by reason of seasonal or technological unemployment while others are in process of moving from old to new jobs, and are for the moment unemployed.

It is only fair to say that the Keynesians do not pretend to prescribe for unemployment of these kinds, which may on the average affect a million or more workers annually, but for the prolonged and much more deadly economic ailment of cyclical unemployment. One writer, in what seems to us a sound interpretation of the term, defines full employment as "a condition under which every person who is able and willing to work can find enough employment in the course of a year to earn not less than enough to maintain his habitual standard of living."¹³ The problem, then, becomes one of preventing the recurrence of business depressions, with their burden of involuntary idleness on the part of persons of unquestioned ability who are

¹² Alvin H. Hansen, in *ibid.*, p. 14.

¹³ E. A. Goldenweiser, in *Jobs, Production, and Living Standards*, Washington, Board of Governors of the Federal Reserve System, 1945, p. 4.

obviously anxious to find work. To avoid fruitless controversy over the impossibility of achieving *full* employment, when the term is interpreted literally and rigidly, some writers have adopted the practice of using the expressions "substantially full employment"¹⁴ and "reasonably full employment."¹⁵

What Might the Government Buy? Critics of this kind of program frequently cite the governmental expenditures of the post-1929 depression as evidence, first, that such spending is very wasteful, and, second, that it does not put a speedy end to the depression.

To the first of these contentions the Keynesians answer that our governmental spending in the 1930's, in so far as it was wasteful, was so largely because it was unplanned. Extensive, hastily executed projects for which detailed plans have not been drawn up in advance are pretty certain to be inefficiently carried out. The Keynesians hold that well-considered planning, which has reached the blueprint stage well in advance of the emergency, would give us an excellent chance to get "our money's worth" in return for whatever expenditure would have to be made in order to insure full employment; and that the expenditure, moreover, could always be made for goods of which society stands in genuine need and of which we are unlikely ever to have an excess. Roads (including underpasses at railway crossings), more adequate educational institutions of all grades, enlarged hospital buildings with the most modern facilities, new housing for millions of families with small incomes—these are but a few of the "public" projects upon which national, state, and local governments might conceivably spend funds which, if not spent in these ways to avoid depression, would have to be expended in large measure for purely "relief" purposes.

It has been suggested, moreover, that there are many other types of expenditure which would pay large social dividends, over and above the prevention of depression (if, indeed, it were prevented) or its reduction to a more manageable size. Sir William Beveridge, in proposing a program of this kind for England, lists not only public spending of all the kinds we have mentioned above, but also investment in a socialized sector of industry, including transport and power and coal or steel; the creation of a National Investment Board to provide loans and tax rebates to private business as a means of stabilizing private investment; the encouragement of low prices for

¹⁴ Alvin H. Hansen, quoted in the present chapter.

¹⁵ *Fortune*, Supplement, December, 1942, p. 7.

essential consumers' goods, if necessary, by a system of subsidies; and an increase in private spending to be brought about by increased national income and broadened social security provisions. Some of these suggestions, it will be noted, are at present more appropriate for England than the United States, since they assume a larger degree of public ownership than prevails in this country.

As for the criticism that our public spending did not put to rout the greatest depression we have ever experienced, the usual answer is that the program which we adopted was a halting, half-hearted one; that we did not at any time spend sums large enough to provide full employment, but continually lived in hope that the governmental "pump-priming" would soon enable private enterprise to go ahead without public assistance; and that public spending for full employment, once begun, must be carried on relentlessly until the battle is won. Indeed, the Keynesians see no reason why the government should not indefinitely finance full employment, since they regard such financing as less wasteful than paying relief benefits to millions of unemployed and having thousands of businesses closed down because demand has not been sustained. Moreover, since it is axiomatic that human wants are indefinitely expansible, they hold that there will always be worth-while undertakings upon which to spend public funds in such quantity as to provide the expenditure required to maintain an economy which would offer employment to all who were able and willing to work.

Paying the Bill for Full Employment. The ordinarily troublesome question of how to pay the bill is met by the Keynesians in this way: The cost of providing full employment, like the cost of every governmental project, will have to be paid from public revenues. This means, in the long run, that the people must pay for these desirable goods through taxation, though at times the cost might have to be met through borrowing—that is to say, through "deficit financing."

To those who accept the Keynesian doctrine, the problem of securing sufficient funds holds no terrors. What must be done above all else is to keep production going! If the output of the country is maintained at a high level, the national income will necessarily be large and there will be no difficulty in securing from taxation whatever revenue is required to finance the program of full employment. As Professor Hansen puts it:

"The notion that we cannot finance our production is quite without foundation. Every cent expended, private and public, becomes income for members of our society. Costs and income are just opposites of the same shield. We can afford as high a standard of living as we are able to produce. We cannot afford to waste our resources of men and material. We cannot afford to use them inefficiently. But we cannot afford idleness. The idleness of the decade of the thirties was responsible for the loss of 200 billion dollars of income. . . . There is not—there cannot be—any financing problem that is not manageable under a full-employment income. From an income so vast [as we produced in war years] we can raise large tax revenues—large enough to service any level of debt likely to be reached and to cover all other government outlays—and still retain for private expenditures much more than we had left in former years. . . . But it is not necessary or desirable under all circumstances to finance all public expenditures from taxes. Whether taxes should equal, fall short of, or exceed expenditures must be decided according to economic conditions."¹⁶

The Current Attitude Toward Full Employment. There can be little doubt that people in general favor full production—a volume of output which would keep our factories, mills, stores, and other places of business humming. Probably most Americans would prefer to have this full production—and consequent full employment—brought about through free enterprise rather than through governmental "interference." But some at least have come to agree with Sir William Beveridge in his belief that no power less than the state can assure adequate total spending at all times. It was doubtless the acceptance of this view, coupled with a recognition of the necessity for outlawing unemployment, that prompted the Editors of *Fortune* in 1942 to publish this declaration: "We propose that the government should underwrite permanent prosperity: that it be established government policy, whether Republican or Democratic, to maintain reasonably full employment in the United States." With this statement went the argument that private industry must have "every chance to operate at capacity and to invest as much of the nation's savings as it can absorb." But the conclusion was unequivocal: "When involuntary unemployment threatens to be either chronic or widespread, it is not to be borne. We believe the government should set

¹⁶ *Postwar Economic Problems*, p. 15.

a minimum, and a minimum reasonably close to our full capacity, below which employment should never be permitted to fall.”¹⁷

Professional economists are divided in their appraisal of the desirability of attempting to avoid depression and unemployment through governmental spending. The average American citizen, we may safely assume, knows little or nothing about the Keynesian theory; and the action taken by Congress in 1946 on a “full employment” proposal indicates that the idea has not yet won great favor in our national legislative halls. It is true that Congress passed the Murray-Patman Act, which purported to deal with the problem; but what began as a “full employment” measure wound up as an “employment-production” act which gives little promise of providing the country with the detailed, long-range program which the Keynesians regard as essential to their program. Certain persons who were keenly interested in the passage of effective legislation of this type accepted the Murray-Patman Act as “better than nothing” and “a move in the right direction”; but it is hard to believe that this Act will be the instrumentality through which either the truth or the falsity of the Keynesian theory of employment will find practical demonstration.

Criticisms of Public Spending to Provide Full Employment. Critics of programs of this kind direct their attack along several lines. First of all, they question the necessity of governmental spending on a large scale, arguing that if government will adopt a “hands-off” policy, business depressions will doubtless come and go much as they did prior to the post-1929 depression—which, they charge, was prolonged by “interference” from the Hoover and Roosevelt administrations. They frequently attack the so-called theory of economic maturity—the notion that the country has so fully exploited its economic possibilities that attractive opportunities for investment are too limited to use up our unconsumed current income—though this theory is not an essential part of the Keynesian doctrine.¹⁸ They hold that if the government will only restrict its economic activities to the encouragement of free enterprise, by passing just tax laws and other legislation favorable to business, private investment will be so greatly stimulated that governmental spending to insure full employment will be unnecessary. They argue that there is no guaranty that government spending would solve the problem of unemployment,

¹⁷ *Fortune*, Supplement, December, 1942, p. 7.

¹⁸ *Ibid.*, p. 8.

that it might easily lead to governmental participation in control, to a considerable degree of government ownership, or even to a planned economy closely resembling socialism, and they point out that in a society of this type we would sadly miss certain "freedoms" which we now accept as a matter of course.

These are important criticisms, to each of which the Keynesians naturally have what they consider to be adequate answers. We cannot undertake to examine them in detail, though in most instances they have been touched upon elsewhere in this book. The plain truth is that no one knows definitely and with certainty what the outcome of a thoroughgoing program of governmental spending would be, and the chances are that we shall never know unless and until we try it out. An economic society which is beset by recurrent depressions and unemployment "takes a chance" no matter what its course of action or inaction may be. Undoubtedly there is a possibility that harm might result from the adoption of the policy of spending which we have been examining. We incline to the view that a freely operating capitalistic system, with a minimum of governmental control and regulation, is likely to furnish a higher average level of employment, production, and income than would result from the adoption of any governmental full employment policy which did not include some possibility of eventually leading to collectivism, and perhaps even to political and economic dictatorship. On the other hand, there may be grave danger in not taking specific measures to conquer the business depression. Such well-known economists as Frank H. Knight, Paul H. Douglas, George Soule, Joseph A. Schumpeter, and A. R. Burns have voiced fears for capitalism¹⁹ which are strikingly similar to those expressed by Professor Hansen in the following statement: "It is no longer possible to accept the thesis that cycles of prosperity and depression may be complacently regarded as a characteristic of a system of free enterprise and private property. In a modern world no system can survive which permits the continued recurrence of serious depressions. Should it prove true, as some still argue, that periodic depressions are an inevitable concomitant of private property and free enterprise, then this system is doomed."²⁰

¹⁹ See John Ise, *Economics*, New York, Harper & Brothers, 1946, pp. 572, 573.

²⁰ *Postwar Economic Problems*, p. 10. Business analysts and captains of industry have given expression to similar views. Said Paul G. Hoffman, President of the Studebaker Corporation, recently: "We cannot live with fluctuations such as that which took place between 1929 and 1932, when business

1. What is a "business cycle"?
2. Explain the significance of Fig. 11. Just what does this chart represent?
3. Why might the production of a country be expected ordinarily to increase in volume from year to year?
4. Contrast the irregular production curve in Fig. 11 with the "trend" curve that appears in the same figure.
5. How long does a business cycle last?
6. In which years during the past quarter-century have we suffered seriously from decreased production? Which have been "boom" years?
7. Why is there a tendency, following a "slump," for production to strike a new high level of activity, instead of merely regaining the lost ground?
8. Name the "periods" of the business cycle in the order of their occurrence.
9. Give the characteristic features of each period of the business cycle.
10. What is the central idea of the "self-generating" theory of business cycles?
11. Explain the significance of the term "self-generating."
12. "Each period of the business cycle is the result of certain causes which have developed in the preceding periods of the cycle." What are these "causes"?
13. Why should "recovery" grow out of a business depression?
14. Would society be better off if business were stabilized? Why or why not?
15. How do you account for delays in seeking a remedy for business cycles?
16. Since the wage earners usually suffer greatly from cyclical fluctuations in business activity, why do they not see to it that the irregularities in production are smoothed out?
17. Is there any reason why business men should not wish to have business stabilized? Explain.
18. How might the Board of Governors of the Federal Reserve System help to stabilize business?
19. How may changes in price levels lead to instability in business activity?
20. Explain the proposal to lessen unemployment during business depression by the development of public works.
21. What other measures for relieving unemployment are mentioned in this chapter?
22. Why should incomplete liquidation interfere with recovery?
23. How might "reflation" lead out of depression into recovery?
24. Outline briefly the "Keynesian approach" to the problem of unemployment.

volume dropped more than 50 per cent. Another collapse of that magnitude might cost us our free economy." (Quoted in *The New York Times*, June 26, 1947.)

25. Explain the necessity for "offsets" to savings if depression is to be avoided.
26. What part might the government play in the provision of full employment? Why should not some other agency perform this function?
27. Define "full employment."
28. Why did not extensive governmental spending in the post-1929 period bring a speedy end to the depression?
29. Do you feel that governmental spending, engaged in to provide full employment, would be better than giving unemployed workers a dole? Why or why not?
30. Do you regard the proposal of the Editors of *Fortune*, that "the government should underwrite permanent prosperity," sound and significant? Explain your answer.
31. What is the nature of the criticisms that have been leveled against the Keynesian program? Do they strike you as sound or unsound, and for what reasons?

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16. General Principles of Price Determination

We have noted that specialization is one of the important characteristics of modern economic life, and is very closely tied up with exchange. Through the process of specialization individuals produce much more of certain commodities and services than they personally expect to use; but, on the other hand, they have need of other commodities and services, the production of which they have left to other persons. To obtain the things he wants but does not himself produce, the individual must exchange, directly or indirectly, his surplus of commodities or services of a certain kind for portions of the surpluses of others.

The farmer, for example, though he comes closer to being self-sustaining than the average type of producer, exchanges wheat, potatoes, or other products he has raised in large quantities, for building materials, farming implements, fertilizers, hardware, clothing, groceries, and other goods essential to his well-being. In like manner, specialization leads to surpluses of all kinds of goods in the hands of their producers, and these surpluses are distributed to other members of society through the process of exchange. Because goods are continually changing hands, every member of a highly organized economy goes through a process of weighing the relative merits of the goods he desires and those which he possesses, and through this process formulates a concept of the value of the various items under consideration; that is, he arrives at a decision on the importance of the commodities and services he wishes to obtain as expressed in terms of the commodities or services he is able to offer.

Exchange and Value. The term "value" refers to a ratio of exchange. This fact is made clear by the use of a term—"exchange value"—which is frequently employed in economic discussion. *Value,*

then, is nothing more or less than the power of a good to command other goods in exchange. If ten bushels of potatoes exchange for one hat, the value of the hat is obviously ten times the value of a bushel of potatoes. And if a hat exchanges for five bushels of wheat, it is clear that the value of wheat per bushel is twice as great as the value of potatoes.

It should be noted, however, that value applies to a given grade or quality of a given commodity, and not to that commodity in general. For example, there may be a half-dozen grades of potatoes, with a separate value for each grade. It is entirely possible for two grades of potatoes to differ more widely in value than, let us say, potatoes of a certain grade and wheat of a certain grade differ in value. It would be no less inexact to speak of "the value of potatoes" than to speak of a "man's wage." There are many grades of potatoes, and therefore many values for potatoes, just as there are different grades of workmen, with consequent differences in wages.

Every exchange is, of course, a two-sided arrangement. Each party to the exchange desires economic goods possessed by the other, and is willing to make a trade. There now comes what is termed in legal phraseology "a meeting of minds." The parties concerned weigh the relative advantages of retaining and giving up the goods they possess, and in this process is developed a ratio of exchange which determines how much of one good shall be surrendered for a certain amount of the other.

In a free exchange both parties gain. That is to say, each gives up the thing he esteems less highly for the thing he esteems more highly; and this general principle holds good whether the exchange is simply a trade of possessions on the part of two boys, a sale and purchase made in a local store, or the long-distance type of exchange known as international trade.

Value and Price. In an earlier chapter¹ we noted a number of reasons for expressing values in terms of money; and values are ordinarily so expressed. The result is called price, and *price may be defined as value expressed in terms of money*. Business men and economists alike generally fall back upon prices when making statements about values, for the reason that to express the values of commodities in terms of other commodities is always a cumbersome process and is sometimes very confusing. If ten bushels of potatoes exchange for one hat, the value of the hat is certainly ten times the

¹ Chap. 10.

value of a bushel of potatoes. But it is equally accurate, and decidedly more convenient, to express this relationship in terms of price, saying, for example, that the price of hats is 10 dollars apiece and the price of potatoes one dollar a bushel. The exchange ratio (or value) of one to ten is the same, whether it is expressed in terms of goods or of dollars.

Prices are accurate measures of values *at any given time*. But they are poor measures of values *at different times*. If, for example, the price of a commodity at one time were compared with the price of the same commodity at another time, it would be impossible to tell whether there had been a change in the *value* of the commodity without knowing whether there had been a change in general prices, commonly spoken of as the price level. This is the case because money itself sometimes changes in value, as we saw in our study of price levels.² When prices in general rise, the value of money falls, and vice versa. Over considerable periods of time one cannot be certain, without actually investigating the situation, that there has not been an important change in the price level—that is, in the value of money. And if there has been such a change, a comparison of the present and former prices of a good gives no indication of the extent to which the *value* of the good has changed, unless the change in the price level is duly taken into consideration.

For example, the price of cotton in 1920 was almost three times as high as in 1913. But much of this advance in price is accounted for by a decline in the value of money, and not by an increase in the power of cotton to command other goods in exchange. Expressed in terms of commodities other than money, the value of cotton was by no means three times as great in 1920 as in 1913.

Nevertheless, in our present treatment, it will be convenient to express values in terms of money, and we shall so express them. If we are dealing with long-time periods, it must be understood that *we are assuming that there has been no change in the value of money during the period referred to*—that is, that there has been no change in the price level. It may be mentioned in this connection that in the many exhaustive studies of prices made by various agencies in recent years, care has usually been taken to “correct” the prices used, so that readers may not be misled by changes that are due to fluctuations in the price level. When corrections of this kind have been

² Chap. 14.

made, it is permissible to use prices to express values even over long periods of time.

The Use of Graphs in the Study of Price. The student of economics who wishes to master the principles of price determination will do well to undertake, from the very outset, to express his problems in the form of graphs. Not only does this method of approach render less difficult the study of one of the most troublesome phases of economic theory, but it has the added advantage of helping one to retain in mind the essential features of the principles that relate to the determination of individual prices. On this account, we here describe briefly the making of demand and supply curves, and in later chapters shall show how these curves are used to illustrate price determination.

Demand and Supply Schedules. An exhaustive study of cotton prices published by the United States Department of Agriculture³ provides us with data from which we may draw up a demand schedule and construct a demand curve. A *demand schedule* (*which we shall call "demand"*) is a series of quantities of an economic good which, in a given market at a given time, would be purchased at a corresponding series of prices. Modified slightly, the government figures referred to give us the following demand schedule:⁴

At a Price (per lb.) of	Buyers Stand Ready to Buy (millions of bales)
40 cents	10
35 "	11
30 "	12
25 "	13
20 "	15
15 "	18
10 "	23

³ Bradford B. Smith, "Factors Affecting the Price of Cotton," *Technical Bulletin No. 50*, Washington, United States Department of Agriculture, January, 1928.

⁴ Strictly speaking, a demand schedule is made up of quantities and prices at a given time. The figures here used were compiled from the experience of a number of years. Thus it is not a *true* demand schedule, in the exact economic sense of that term. But it is entirely satisfactory for our present purposes, and its use should not lead to confusion. All that we have done is to ignore the time element in using these data. The difficulties of "extracting" the factor of time in the construction of demand schedules may be seen by reference to

Though the Department of Agriculture does not provide a supply schedule, we may construct a hypothetical schedule for ourselves, assuming that cotton would be offered by dealers in the following quantities at the prices given:

At a Price (per lb.) of	Sellers Stand Ready to Sell (millions of bales)
10 cents	5
15 "	11
20 "	15
25 "	18
30 "	20
35 "	21
40 "	22

Thus we see that a *supply schedule* (which we shall call "supply") is a series of quantities of an economic good which, in a given market at a given time, would be offered for sale at a corresponding series of prices.

Demand and Supply Curves. These schedules may readily be converted into demand and supply curves, the demand curve appearing as in Fig. 12.

It will be noted that prices are plotted along the vertical line OY, and quantities (bales, in the present instance) along the horizontal line OX. The demand schedule supplies the data for the placing of a number of points, *each point indicating both a price and a quantity*. The position of each point is determined by the intersection of two imaginary lines drawn perpendicularly to OY and OX from particular price points and quantity points, respectively. The broken lines in Fig. 12 indicate the perpendiculars that fix the position of the point for 15,000,000 bales at 20 cents a pound. When a point has been supplied in like manner for every item listed in the demand schedule, these points are connected by solid lines, and the demand curve is complete (see DD). Though only seven prices appear in our illustration, it will be understood that a demand curve may have an infinite number of quantities and corresponding prices.

Henry Schultz, *Statistical Laws of Demand and Supply*, Chicago, University of Chicago Press, 1928.

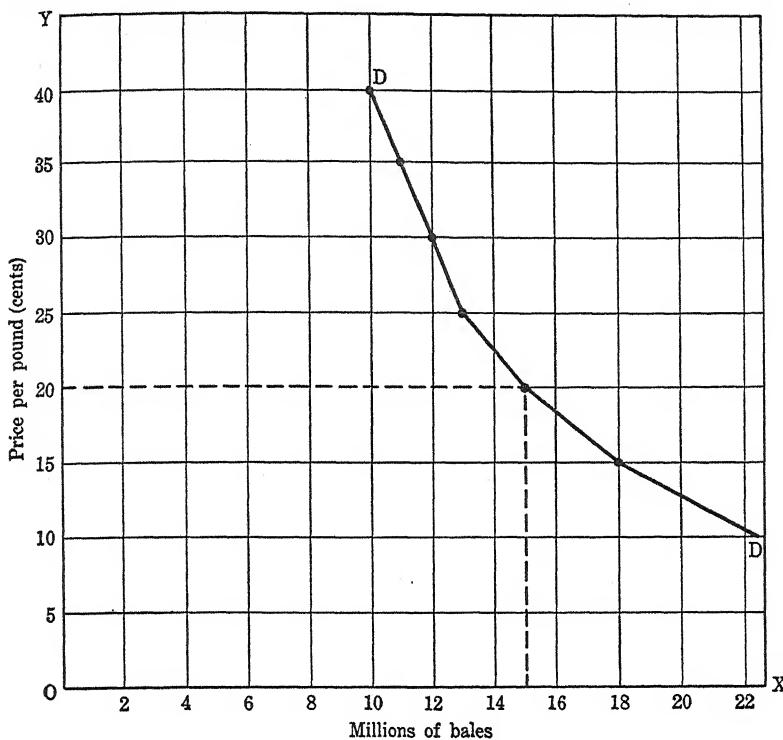


FIG. 12. A DEMAND CURVE.
(Charted from a demand schedule.)

The supply schedule may likewise be made into a curve as in Fig. 13.⁵

Meaning of the Term "Market." It should now be noted that the word "market" is employed in a special sense by economists. To most persons this term suggests a definite place (perhaps a building) in which buyers and sellers come together for the transaction

⁵ The SS curve in Fig. 13 does not have any necessary relation to costs of production, but merely shows the prices at which various quantities would be offered by sellers. However, the supply curves for long-run supply (which will be described in later chapters) are definitely related to costs of production, being based on the average costs per unit of the several quantities that appear in the supply schedule. We may also note here a fact that will later have detailed treatment, viz., that long-run supply curves do not necessarily show (as does the supply curve in Fig. 13) that progressively larger quantities would be offered only at progressively higher prices. Indeed, long-run supply curves may slope upward, downward, or move parallel to the OX axis.

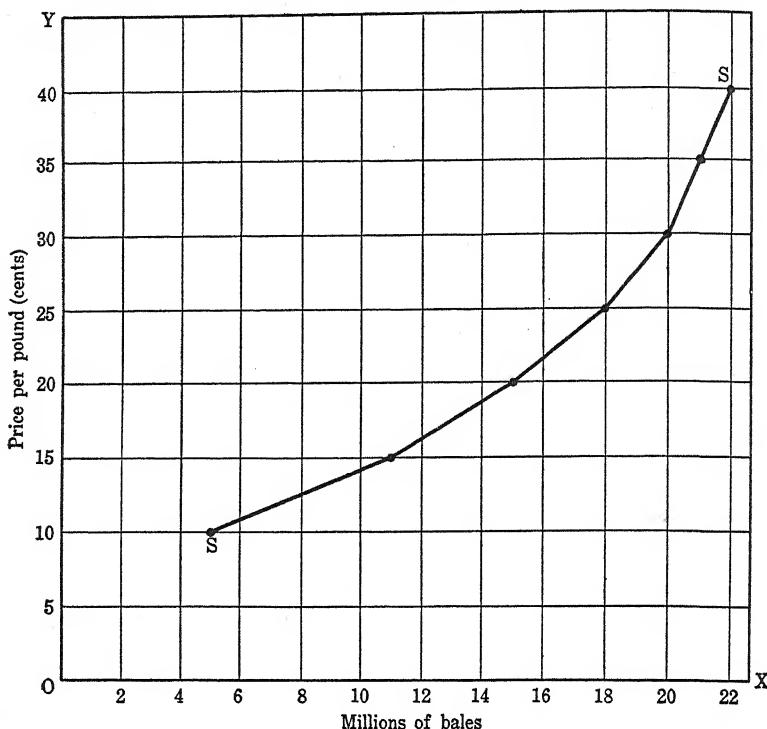


FIG. 13. A SUPPLY CURVE.
(Charted from a supply schedule.)

of business. The economist, however, uses the word to include any region, however large or small, in which buyers and sellers are so situated that they may engage freely in the purchase and sale of a given good. The market for fresh vegetables, for example, is often a very restricted one, because of the perishability of these goods, and may be limited to a small village. But such commodities as wheat and cotton, which are in demand in many countries and can be transported safely and cheaply for great distances, are bought and sold in a *world market*.

The essential elements of a market, then, are the possession of accurate information on market conditions by the parties concerned, and the ability to deliver the goods promptly and safely once a sale has been made.

Market Demand and Market Supply. We shall have occasion to use two further terms which require a few words of explanation. They are "market demand" and "market supply." We have spoken of a demand schedule (or demand) as being a series of quantities of an economic good which, in a given market at a given time, would be purchased at a corresponding series of prices. *Market demand* is represented by a single point of a demand schedule; that is, it is the quantity of an economic good which, in a given market at a given time, would be *purchased* at a specified price. In like manner, *market supply* bears a similar relation to the supply schedule; it is the quantity of an economic good which, in a given market at a given time, would be *offered for sale* at a specified price.

THE INFLUENCE OF DEMAND IN PRICE DETERMINATION

The Meaning of "Demand." The word "demand" is one of many which economists use in a special sense. Some persons employ this term when what they mean is simply desire. They say, for example, that the demand for houses is great, when what they have in mind is that there is a desire, on the part of many people, for better housing. To the economist, however, there is no such thing as demand apart from price. Demand to him signifies much more than the desire for economic goods. The economic use of the term includes not only this desire, but also the willingness and ability to purchase the commodity at a stipulated price. It is obvious that the desire of a laborer for a palatial residence, a Rolls-Royce car, and a retinue of servants, which he may have seen portrayed in motion pictures, does not in any way affect the demand schedules for these commodities and services, and does not, therefore, constitute demand in the economic sense; for there can be no demand until desire is backed up by purchasing power. All that has been said in this paragraph is entirely consistent, of course, with our technical definition of demand as a series of quantities of a good which, in a given market at a given time, would be purchased at a corresponding series of prices.

The Law of Demand. Economists who have studied the actions of the buying public, as expressed in purchases of economic goods, have generalized their findings in the form of a statement known as the Law of Demand. According to this law, *the quantity of an economic good that will be purchased, in a given market and at a given time, varies inversely with the price*; that is to say, more goods

of a given kind will be bought at a low than at a high price. Therefore, the larger the quantity of a good to be disposed of, the lower the price must be. This state of affairs is shown graphically by the general slope of the demand curve, which is toward the right and downward, as may be seen by reference to the demand curve shown in Fig. 12. If the Law of Demand is correct, a total demand curve must always move in this general direction, since a movement downward indicates lower price and a movement to the right indicates increased quantity.

Causes of the Law of Demand. There are three important factors contributing to the relationship between quantity and price that is described by the Law of Demand. These factors are:

1. The principle of diminishing utility.
2. Differences in the desires of individuals.
3. Differences in the money incomes of individuals.

Influence of the Principle of Diminishing Utility. We have seen that there can be no such thing as demand for a good unless there is a desire for the good, for no man will pay a price for a thing he does not desire. The amount he would pay rather than go without the good measures the intensity of his desire for it, or (to use a term employed in Chapter 4) the utility of the good. If, then, a person is willing to pay 6 cents for an orange, the 6 cents is a measure of the utility of the orange to him. We may take it for granted that he expects the gratification yielded up by the orange to justify the expenditure of the 6 cents. It may develop that his calculations were wrong. He may find, upon consuming the orange, that it affords less gratification than a 5-cent apple. He may even discover that it gives him indigestion instead of satisfaction. But whatever may be his reasons for wanting the orange in the first place and whatever the outcome of its consumption, the fact remains that, when he made the purchase, 6 cents measured the utility of the orange to him and influenced his bid for it.

But a willingness to pay 6 cents for a single orange does not necessarily mean a willingness to pay as much for a second or a third. Indeed, it is a matter of common experience that the more units of a given good a man possesses, the less highly does he prize each unit of his total stock. A single suit of clothes is extremely important in a civilized society, and its utility is correspondingly great. It is not so important to have a second suit, and it is still less necessary to have a third. The utility of the second suit, therefore, is not

so great as the utility of the first, and that of the third is still less than that of the second. If suits of clothing should be added to one's wardrobe until one's personal effects included (say) seventy-five suits, as is said to be the case with the Duke of Windsor, the utility of each of these suits would obviously be rather slight. That is, any one suit could be dispensed with without the owner suffering greatly through its loss, though by the man having but two suits, or even three, the loss would be felt more keenly. The point is that the more units of a good one has, the less importance does one attach to each of the units. Another way of putting it is to say that *at any given time the intensity of a person's desire for a unit of a given good diminishes progressively as additional units of this good are acquired.*

This is the principle of diminishing utility, and we may readily see how it contributes to the Law of Demand. We have suggested that a man who is willing to pay 6 cents for a first orange might have a slighter intensity of desire for a second, third, hundredth, or thousandth orange. Since he will pay no more for an orange than the amount which measures its utility to him, then clearly as the utility of oranges diminishes, his bids for oranges will decline. He would take two oranges, let us say, only if oranges were selling at 5 cents apiece, three if they were 4 cents, four if 3 cents, and five if they could be had at 2 cents each.

If, then, this person were the only one bidding for oranges, the demand schedule for oranges would be one orange at 6 cents, two oranges at 5 cents apiece, three at 4 cents, four at 3 cents, and five at 2 cents. This schedule, it will be seen, illustrates perfectly the Law of Demand, since it shows that the quantity that would be purchased varies inversely with the price. A curve drawn from this schedule will, like the demand curve in Fig. 12, slope to the right and downward. It will be apparent, therefore, that the principle of diminishing utility is a factor affecting the Law of Demand.

The Influence of Differences in Desires. Another factor is differences in desires. Some people are very fond of oranges and will pay high prices rather than do without them, whereas others care for oranges only moderately, and still others have so slight a desire for this fruit that they can be persuaded to purchase only if the price is extremely low. It is entirely possible, for example, that of five persons having equal money incomes, one, because of his liking for oranges, would be willing to pay 6 cents for a first orange, while the second, third, fourth, and fifth members of the group, because

of their smaller desires for oranges, would pay, respectively, only 5, 4, 3, and 2 cents for their *first* oranges.

If we were to graph the influence of these differences in desires, relating as they do merely to the *highest* prices at which these five individuals would buy oranges, we should again have a curve sloping toward the right and downward. For our data show that one orange would be bought at 6 cents, two at 5 cents apiece, three at 4 cents, and so on, the number that would be purchased varying inversely with the price. Of course, each of these persons, whether he would buy his first orange at 6 cents or at 2 cents, will be subject also to the principle of diminishing utility, and sooner or later would buy additional units of this good only if they could be had at progressively lower prices.

It is evident, then, that the principle of diminishing utility and differences in desires both contribute to the Law of Demand, since both influence the demand curve in the same general direction.

The Influence of Differences in Money Incomes. To these two influences must be added a third—that of differences in the money incomes of individuals. There can be little doubt that some members of society who are very fond of oranges must, because of limited incomes, do without them when the price is as high as 6 cents each. Some who could not afford to buy at 6 cents would doubtless come into the market at 5 cents, still others at 4 cents, and so on. Moreover, some persons with small incomes who bought a single orange each at 6 cents might be induced to buy two if the price were 5 cents, or three if oranges could be had at 4 cents apiece. The point is that there are people whose incomes, though small, would permit them to buy oranges at a low but not a high price. It seems safe to say, therefore, that this one factor—the influence of differences in incomes—would, if presented in graphic form, give us a curve sloping to the right and downward indicating that the number of oranges that would be purchased varies inversely with the price.

Because of the operation of the principle of diminishing utility, an individual can be induced to buy more units of a given good at a low price than at a high price. Because of differences in desires, more people can be induced to buy a given good at a low than at a high price. Because of differences in the money incomes of individuals, more people can be induced to buy a given good at a low than at a high price. Combining these three factors, we have a com-

posite of influences, all of which affect demand in the same direction. This composite gives us the statement known as the Law of Demand, which is pictured graphically in the demand curve. The Law of Demand applies, of course, to economic goods of all kinds.

Changes in Demand. Demand, as we have seen, is a series of quantities of an economic good which, in a given market at a given time, would be purchased at a corresponding series of prices. When changes in demand occur, they indicate that there has been a re-adjustment of quantities and prices. An *increase in demand* means that at each of the several prices appearing in a demand schedule a larger quantity would be purchased now than formerly, or that

TABLE 17. CHANGES IN DEMAND SCHEDULES FOR ORANGES,
SHOWING DECREASED AND INCREASED DEMAND

Price per Orange	Number of Oranges That Would Be Bought		
	Decreased Demand	Original Demand	Increased Demand
8 cents.....	4,000	7,000	10,000
7 cents.....	5,000	8,000	11,000
6 cents.....	6,000	9,000	12,000
5 cents.....	7,000	10,000	13,000
4 cents.....	8,000	11,000	14,000
3 cents.....	9,000	12,000	15,000
2 cents.....	10,000	13,000	16,000
1 cent.....	11,000	14,000	17,000

the same quantity as would formerly have been bought at each of these several prices would now be bought at a higher price. A *decrease in demand*, on the other hand, means that at each of the prices appearing in a demand schedule a smaller quantity would be purchased now than formerly, or that the same quantity as would formerly have been bought at each of these prices would now be bought only at a lower price. It is impossible to express increased and decreased demand without resorting to rather involved sentences, but any difficulties the reader may have in understanding the above statements will disappear promptly if he will follow carefully the descriptive matter in the remainder of the present section.

Table 17 consists of three demand schedules which show original, increased, and decreased demands for oranges. Let us make sure, by

reference to these schedules, that the requirements of increased and decreased demand are here fully complied with. We note, for example, that under the original conditions of demand 10,000 oranges would have been bought at 5 cents each. According to our definition of *increase in demand*, “[at 5 cents] a larger quantity would be purchased now than formerly”; and the final column of Table 17 shows that 13,000 oranges, instead of 10,000, would now be bought at this price. Or, to quote the second half of our definition, “the same quantity as would formerly have been bought at [5 cents] would now be bought at a higher price”; and the table shows that this same quantity, 10,000 oranges, would now be bought at the price of 8 cents each.

Comparing, next, original demand with decreased demand, we find that the figures show that at 5 cents each only 7000 oranges would now be taken, as against the former figure of 10,000, and that the original quantity of 10,000 would be bought only if the price were as low as 2 cents each. Here, then, is a fulfillment of the two requirements of a *decrease in demand*—that “at each of the prices appearing in a demand schedule a smaller quantity would be purchased now than formerly” (7000 instead of 10,000 oranges at 5 cents each), and that “the same quantity as would formerly have been bought at each of these prices would now be bought only at a lower price” (10,000 oranges at 2 cents instead of 5 cents each). A detailed examination of Table 17 shows that increased demand and decreased demand, respectively, are here correctly illustrated.

Fig. 14 presents the situation graphically. DD is the original demand curve. D'D' is a new curve showing increased demand, and D''D'' another new curve indicating decreased demand. In the graphic presentation of demand curves, then, an increase in demand is shown by a shift of the curve to the right, and a decrease in demand by a shift of the curve to the left. In Fig. 14 it happens that the new curves, D'D' and D''D'', are parallel to DD, but it should be apparent that a new curve, showing increased or decreased demand, need not be parallel to the original demand curve.

An increase in the demand for a good may occur because the utility of the good has increased, or because an increase in money incomes induces former buyers to purchase in larger quantities or new buyers to enter the market. A decrease in demand, of course, would result from causes of an opposite nature. In the case of decreased demand, either the good in question is desired less highly

than before, or there has been a decline in money incomes which, though the utility of the good may remain unchanged, makes it impossible for would-be consumers to purchase as large quantities as were indicated in the old demand schedule. (It is scarcely necessary to add that an increase or a decrease in demand may be the result of more than one cause.)

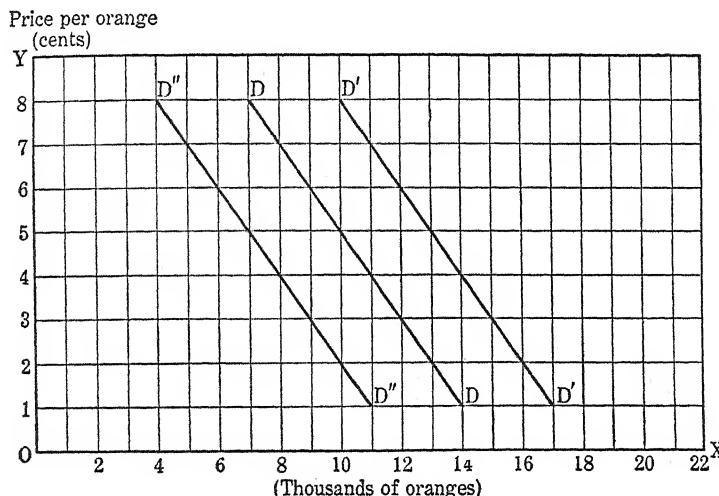


FIG. 14. DEMAND (D), INCREASED DEMAND (D'), AND DECREASED DEMAND (D'') FOR ORANGES. (Compare Table 17.)

To be specific, an increase in the demand for oranges might well result from an elaborate campaign setting forth the health-giving qualities of this fruit. Publicity of this kind would doubtless make some people willing to buy more oranges at a given price than they would formerly have bought at that price. Or an increase in the wages of workingmen might bring the use of oranges within the range of many families in which they were formerly unknown because of their relatively high cost. On the other hand, if an enterprising manufacturer of cigarettes should urge upon the public the desirability of smoking cigarettes instead of eating oranges, conceivably the effect might be a decline in the demand for oranges and an increase in the demand for cigarettes. A decline in the wages of workers might also bring about a decrease in the demand for oranges, since, with reduced money incomes, certain wage earners

would feel compelled to reduce their expenditures for those items of food which they might regard as luxuries.

The Elasticity of Demand. We must now consider the nature of the terms "elastic demand" and "inelastic demand." *Elastic demand* is a demand schedule which shows that the quantity of a good that would be purchased is so highly sensitive to price that a larger total amount would be expended for the good at a low than at a high price. *Inelastic demand* is a demand schedule which shows that the quantity of a good that would be purchased is so slightly sensitive to price that a smaller total amount would be expended for the good at a low than at a high price. If the total expenditure for the good would be the same regardless of price, we have a demand schedule with an "elasticity of unity."

TABLE 18. AN ELASTIC DEMAND SCHEDULE, SHOWING THE NATURE OF THE DEMAND FOR AUTOMOBILES

Price per Car	Quantity That Would Be Bought	Total Expenditures
\$1800.....	100,000 cars	\$180,000,000
1600.....	300,000 cars	480,000,000
1400.....	500,000 cars	700,000,000
1200.....	700,000 cars	840,000,000
1000.....	900,000 cars	900,000,000
800.....	1,200,000 cars	960,000,000
600.....	1,650,000 cars	990,000,000

The demand for luxuries is often elastic, because an appreciably smaller quantity of a luxury may be sold at a high than at a low price, with the consequence that the *total expenditure* for the good in question would be smaller at the high than at the low price. The demand for automobiles may be used by way of illustration. To many people an automobile for personal use is regarded as desirable but not indispensable. These people will buy cars if the price strikes them as moderate, but they will not buy if the price seems unduly high. Hence, as we have suggested in Table 18, so many automobiles of a particular kind might sell at \$600 each that the total expenditure for such cars at this low price would exceed greatly the total expenditure if the price were \$1800 per car.

On the other hand, there are some economic goods, commonly referred to as necessities, which sell in almost as large quantities at

high as at low prices. Bread is a commodity of this type. The amount of bread consumed by the average family is about the same whether the price is high or low. This is true also of potatoes and many other relatively cheap food products. Indeed, the less expensive the commodity, ordinarily the more inelastic will be the demand for it, and vice versa. For if the good is one for which there are fairly satisfactory lower-priced substitutes, a high price may drive many people to the use of these substitutes. If the price of butter is high, some who would like to use butter will substitute oleomargarine; but if the price of potatoes or bread is high, there are few lower-priced substitutes to which buyers can turn, though they may, to be sure, practice extreme economy in the use of these goods and thus buy somewhat small quantities than they would have bought if the prices were lower.

Some articles have an inelastic demand because they play so small a part in the average person's budget that even a high price does not keep people from buying. Decidedly fewer automobiles would sell at \$1800 apiece than at \$600, since this difference in price forms an appreciable percentage of the total income of the average individual. But it is probable that both newspapers and postage stamps sell almost as extensively at three or four cents each as at two cents, simply because, at the higher prices, the outlay for newspapers and postage stamps is an almost negligible item in one's total expenditure for economic goods.

Tables 18 and 19 show clearly how demand schedules may be tested to ascertain whether they represent elastic or inelastic demand. In Table 18 we have a hypothetical demand schedule for automobiles, to which have been added total expenditures for all automobiles that would be sold at the several prices listed in the schedule. These steadily increasing "total expenditures" show that society as a whole would, under the conditions that we have assumed, spend more for automobiles at the lower than at the higher prices. The social budget for automobiles is sufficiently elastic to induce greater total spending for this commodity when the price is low than when it is high. Table 18 therefore illustrates elastic demand.

Table 19 shows a contrary condition. For, although a low price for bread (according to the demand schedule) would induce a greater consumption of this good, yet the *total amount spent* for bread would be smaller at a low than at a high price. This is the

sort of situation that is referred to when we use the expression "inelastic demand."

Every demand schedule must obey the Law of Demand, and the fact that a schedule is elastic or inelastic does not in any way affect this requirement. Tables 18 and 19 both show that "at progressively lower prices progressively larger quantities would be purchased by consumers," so that both of these schedules clearly conform to the Law of Demand.

Demand is elastic, then, if the total amount spent by society for a given good would be larger at a low than at a high unit price; it is inelastic if the total amount spent for the good would be smaller at

TABLE 19. AN INELASTIC DEMAND SCHEDULE, SHOWING THE NATURE OF THE DEMAND FOR BREAD

Price per Loaf	Quantity That Would Be Bought	Total Expenditures
16 cents.....	5,000,000 loaves	\$800,000
14 cents.....	5,250,000 loaves	735,000
12 cents.....	5,500,000 loaves	660,000
10 cents.....	6,000,000 loaves	600,000
8 cents.....	6,250,000 loaves	500,000
6 cents.....	6,500,000 loaves	390,000
4 cents.....	6,750,000 loaves	270,000
2 cents.....	7,000,000 loaves	140,000

a low than at a high unit price. In the case of elastic demand, the larger quantity of a good that would be disposed of at a lower price as compared with a higher price, would more than compensate for the loss of revenue suffered through the acceptance of the lower unit price; in inelastic demand, the larger quantity sold would less than compensate for this loss per unit; and in the case of an elasticity of unity the loss in revenue per unit of commodity would be fully compensated, but no more than compensated, by the larger quantity that would be sold at a lower as compared with a higher price.

It should be noted that a demand schedule may indicate elasticity at one point and inelasticity at another. If, for example, Table 18 showed that, at \$800, 1,100,000 cars would be sold (expenditure, \$880,000,000), and at \$600 the sales would be 1,300,000 (expenditure, \$780,000,000), we should have inelastic demand in this portion of the schedule, but elastic demand in the portion containing the other prices and quantities. Elastic and inelastic demand curves

follow the general downward slope to the right that is characteristic of all demand curves. However, there is frequently quite a difference in the appearance of curves showing elastic and inelastic demand. Elastic demand is shown in Fig. 15, and we note that the downward trend of the curve is quite gradual as compared with that of inelastic demand, which is indicated in Fig. 16. But the appearance of the curve is not the deciding factor, since the appearance of the curve depends upon the scale on which it is drawn. The real test consists of comparing total expenditures in the manner

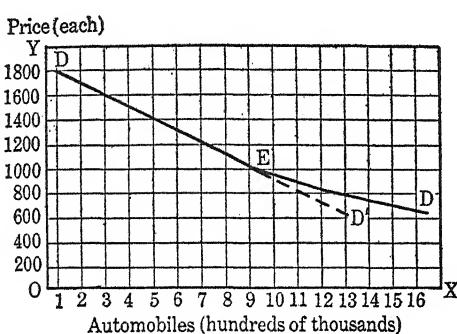


FIG. 15. ELASTIC DEMAND.

Shown in the demand for automobiles.

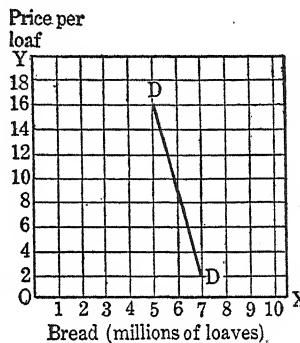


FIG. 16. INELASTIC DEMAND.

Shown in the demand for bread.

we have described. In Fig. 15 the curve DD is elastic throughout, whereas the curve DD' is elastic from D to E, but inelastic from E to D'. Hence the curve DD' pictures the change from elastic to inelastic demand, which sometimes occurs and which was explained in the preceding paragraph. We shall have occasion to refer to elastic and inelastic demand in our further discussion of price determination.

Value is the power of a good to command other goods in exchange.
Price is value expressed in terms of money.

Demand (that is, *schedule demand*) is a series of quantities of an economic good which, in a given market at a given time, would be purchased at a corresponding series of prices.

Supply (that is, *schedule supply*) is a series of quantities of an economic good which, in a given market at a given time, would be offered for sale at a corresponding series of prices.

A *market* is any region in which buyers and sellers are so situated that they can engage freely in the purchase and sale of a given economic good.

Market demand is the quantity of an economic good which, in a given market at a given time, would be purchased at a specified price.

Market supply is the quantity of an economic good which, in a given market at a given time, would be offered for sale at a specified price.

Law of Demand: In a given market at a given time, the quantity of an economic good that will be purchased varies inversely with the price.

Elastic demand is a demand schedule which shows that the quantity of a good that would be purchased is so highly sensitive to price that a larger total amount would be expended for the good at a low price than at a high price.

Inelastic demand is a demand schedule which shows that the quantity of a good that would be purchased is so slightly sensitive to price that a smaller total amount would be expended for the good at a low price than at a high price.

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1. Why is "price" important in a society in which specialization is highly developed?
 2. Define "value."
 3. Give a specific illustration (not taken from the text) of value.
 4. Define "price."
 5. Why is value usually expressed in terms of money?
 6. Are prices accurate measures of values? Explain.
 7. What is the purpose of "correcting" prices, as is often done in price studies?
 8. Define "demand."
 9. Define "supply."
 10. Give synonyms for both "demand" and "supply."
 11. Exactly what is a demand curve? A supply curve?
 12. Define "market." Give examples of several types of markets.
 13. Distinguish between "demand," "schedule demand," and "market demand."
 14. Distinguish between "supply," "schedule supply," and "market supply."
 15. State the Law of Demand.
 16. What is the general direction of a demand curve? Why?
 17. To the economist the word "demand" signifies much more than the mere desire for economic goods. Explain.

18. What are the three factors contributing to the situation described by the Law of Demand?
19. Explain the principle of diminishing utility.
20. We speak of differences in desires for economic goods as a factor influencing demand. Give some concrete examples indicating that such differences really exist.
21. Explain the manner in which differences in money incomes affect demand.
22. Precisely what is meant by an increase in demand? By a decrease in demand?
23. How are increased demand and decreased demand, respectively, indicated on a demand graph?
24. Explain economic conditions under which an increase in demand might take place. A decrease in demand.
25. What are (a) "elastic demand," (b) "inelastic demand," and (c) "elasticity of unity"?
26. Give examples of two commodities for which you should expect the demand to be elastic. Two for which the demand is inelastic.

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17. Price Determination in the Short Run

Someone has been so unkind as to say that a parrot could be made into a passably good economist simply by teaching him to answer "supply and demand" to every question that might be put to him. This statement, we believe, will scarcely be taken literally by the reader who has given careful consideration to the material we have covered thus far. Nevertheless, it serves to emphasize the vital part played by supply and demand in the determination of individual prices. And the significance of supply and demand needs to be emphasized, for *the prices of all economic goods are determined by the conditions of supply and demand.* This statement, however, comes pretty close to being meaningless unless one has an understanding of the nature of supply and demand, and of the factors affecting these two determinants of price. We have already had a good deal to say about demand, and shall devote the greater part of several chapters to a study of supply which will provide us with abundant food for thought.

Equilibrium of Demand and Supply. But our examination of supply will be simplified if, before entering upon it, we illustrate clearly the statement that price determination hinges upon the relationship between supply and demand. In the previous chapter we looked into the making of supply and demand schedules and supply and demand curves. The two schedules for cotton there constructed may be put into a single table, as shown in Table 20. They may also be illustrated graphically in a single chart, as in Fig. 17. Here, it will be observed, we have brought together the demand and supply curves that were shown separately in Figs. 12 and 13.

Table 20 shows that there is only one price at which buyers would take exactly the same quantity of this good as sellers would offer. This price is 20 cents a pound, and the quantity is 15 million bales.

TABLE 20. SUPPLY SCHEDULE AND DEMAND SCHEDULE FOR COTTON

Price per Pound	Supply (quantities that would be offered)	Demand (quantities that would be purchased)
10 cents.....	5 million bales	23 million bales
15 cents.....	11 million bales	18 million bales
20 cents.....	15 million bales	15 million bales
25 cents.....	18 million bales	13 million bales
30 cents.....	20 million bales	12 million bales
35 cents.....	21 million bales	11 million bales
40 cents.....	22 million bales	10 million bales

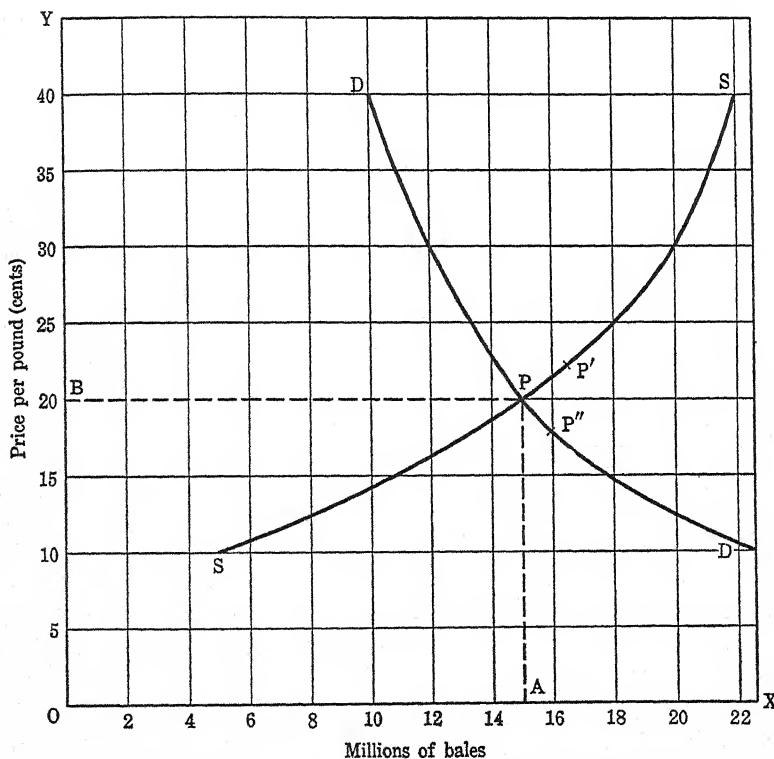


FIG. 17. EQUILIBRIUM OF DEMAND AND SUPPLY IN THE SHORT RUN, UNDER COMPETITIVE CONDITIONS.

We have here an *equilibrium of demand and supply*, and it is through an equilibrium of this kind that price is indicated. Fig. 17, since it is a graphic representation of Table 20, shows precisely the same thing. Equilibrium of demand and supply is here effected at the point at which the demand and supply curves intersect, and this point, P, indicates that 15 million bales would be offered for sale and 15 million bales would be taken at the price of 20 cents a pound.

It should be clear, then, that in attempting to ascertain the price of a good under any given set of conditions, we must keep a sharp lookout for the point at which market demand is precisely equal to market supply. In the pages that follow, we shall look into price determination under perfect and imperfect competition, and complete and partial monopoly, and we shall examine prices in the "short run," "long run," and "period of current production." But in all the complications that beset the student of price theory, he may perhaps get some comfort, and some assistance as well, from the realization that every price is determined by the forces of supply and demand, and that in most instances price can be indicated by an intersection of supply and demand curves.

COMPETITIVE PRICE IN THE SHORT RUN

Meaning of the "Short Run." We have referred above to the short run, long run, and period of current production. The long run and period of current production will be described later. The short run, with which we are to deal immediately, may be defined as *a period of time in which there exists a fixed stock of a given economic good*. The stock of a good is the total quantity in existence and available for sale at a given time; a *fixed stock* is a stock which cannot be increased, and cannot be decreased except by sale.

This assumption of a short-run condition—of a fixed stock of an economic good—is certainly not an assumption contrary to fact. At any given moment the stock of every commodity is fixed, and, in the case of many commodities, the stock cannot be increased quickly. This is particularly true of agricultural products; the world stock of cotton, for example, cannot be enlarged until the coming of the next harvest, and consequently the condition is one of fixed stock until the new crop arrives. It is equally true that the stocks of some types of manufactured goods cannot be added to very quickly because they are made by exceedingly roundabout processes, the finished commodities maturing slowly from the raw materials. In general, how-

ever, man's efforts to speed up production are less often interfered with in manufacture than in agriculture, since manufacture is more largely independent of natural conditions, such as rainfall and temperature.

Short-Run Price and Costs of Production. The costs incurred in producing goods are of great importance in the determination of price in the long run and the period of current production, and will be dealt with in due time. They play no direct part, however, in price determination in the short run, so that it will not be necessary to take them into account in our examination of short-run price. Costs of production can influence price only by affecting the quantity of a good that will be produced *in the future*. Thus, the prospect of getting a price in excess of costs of production will lead enterprisers to produce large quantities of the good, while the fear of having to take a price lower than costs of production will naturally lead them to limit their output, or perhaps even to quit producing entirely, to avoid incurring losses.

Once the good has been produced, however, it is beyond the influence of the costs of production. The question that then arises, as we shall see, is the price at which the existing stock of the good can best be disposed of, and the answer need have no relation to the cost at which the good was produced. It is wholly a matter of marketing the good to the best advantage—of *getting as much as possible for the stock*, regardless of whether this amount is greater or less than, or exactly equal to, the costs of production.

Equilibrium of Demand and Supply in the Short Run. Let us now examine a specific instance of short-run price determination, using the data given in Table 20 and Fig. 17 and assuming that they relate to the short-run supply of and demand for cotton in a given market. Here we have a fixed stock of 22 million bales. The demand curve illustrates the well-established fact that larger quantities would be purchased at a low price than at a high price; the supply curve shows, on the other hand, that larger quantities would be offered at a high than at a low price. Combining these two curves, we get an equilibrium at the point P, the distance of which from the horizontal line, OX, indicates short-run price, which is often spoken of as "market price." It may be remembered from Chapter 16 that this point, P, also marks the intersection of two perpendiculars drawn from the vertical line OY and the horizontal line OX, respectively. This being true, the line AP, measuring price, must equal its parallel

OB, and the price per pound at which 15 million bales will sell is 20 cents.

P is the only point on the chart at which the demand and supply curves meet; that is to say, 20 cents a pound is the only price at which buyers are willing to buy exactly the same amount that sellers are willing to sell. It is the one and only price in the demand and supply schedules (and consequently in the demand and supply curves) at which 15 million bales of cotton will be both offered and purchased. It is the outcome, on the part of the buyers and sellers, of a comparison of satisfactions and sacrifices, which is a condition of exchange essential to an actual trade transaction.

The Process of Bargaining. What takes place, in effect, is a process of *bargaining*. Sellers would like to secure as much as 22 cents a pound (see P') or even more, and they may at first ask this high price; but they soon discover, from the sluggishness of the market, that unless they lower the price they will be left with very considerable quantities of cotton on their hands. They then proceed to weigh the relative advantages of disposing of their holdings at once at a lower figure or, on the other hand, of retaining their holdings for a time in the hope of obtaining a better price.

In reaching a decision, the sellers ask themselves some such questions as these: What are the chances that the price of cotton will go up instead of down? How promptly is the higher price likely to be obtainable? How much will the storage charges for this period amount to? Is there a probability that the cotton will deteriorate in the meantime, and if so, to what extent? And so on. If, having surveyed the present situation and taken into account future prospects, the sellers of cotton come to the conclusion that it would be unwise to postpone the sale of their holdings, they will gradually reduce their quotations, and their asking prices will move toward the point P.

Buyers, on the other hand, may try to buy at as low a price as 18 cents (see P''), but, discovering that purchases cannot be made at this figure, they gradually increase their bids, so that demand prices likewise move toward P. The final outcome, if our chart represents conditions accurately, is a meeting on the common ground, P, which, as we have already noted, is called the *equilibrium of demand and supply*. The point P, as we have said, indicates short-run price, or market price. These two terms may be used interchangeably.

Competition and Monopoly. Short-run price is arrived at through a process of bargaining, and bargaining is seen at its best

when there is competition among sellers to dispose of their goods, and among buyers to get possession of these goods. *Competition is a market condition in which there are many buyers and sellers, so that the actions of any one buyer or any one seller will not have any effect upon price.* Competition assumes the absence of combinations among sellers and among buyers. It assumes, moreover, that every buyer and every seller is well informed as to the activities of other buyers and sellers, and that all units of the good under consideration are exactly alike, so that there is no reason why a buyer would rather purchase from any one seller than from another.

Much of our discussion of price determination will assume the existence of free competition, as we have just described it. But competition, it must be confessed, is not always free and unhampered. It sometimes, though not often, happens that potential buyers, deciding that prices are too high, agree among themselves not to make purchases until prices are lowered. The effect is to bring the prices down, a result which is brought about when sellers find it imperative to secure funds with which to meet their financial obligations. There were several instances of concerted action of this kind during World War I and following both that war and World War II.

Much more common than agreements among buyers are those among sellers of goods, which have the effect of raising prices through a shrewd regulation of the quantity of a given commodity that is offered for sale. This practice, carried to its extreme, gets into the field of complete monopoly; and monopoly price (as we shall see later), though determined by conditions of demand and supply, is peculiar in that the quantity offered for sale is controlled either naturally or artificially, being in the hands of a single seller or very few sellers. Under monopoly conditions there is bargaining between sellers and buyers, but the buyers bargain at a disadvantage because of the absence of competition among sellers.

It will be well at this point to emphasize the fact that the only way price can be influenced is through some action affecting either the quantity of a good that purchasers are willing to buy or the quantity that sellers are willing to offer. If consumers wish to beat down the price of a good through unified action, they must do it by limiting their purchases, that is, by bringing about a decrease in demand such as is illustrated in Fig. 18 of the present chapter. Sellers, moreover, can secure higher prices only by decreasing the quantity offered for sale, as is shown in Fig. 19. This statement ap-

plies equally to competitive and monopoly conditions. We see, then, that supply and demand are all-important factors in the determination of individual prices.

A Note on Our Method of Approach. It is quite possible that some readers, by the time they have completed our treatment of price determination, will feel that undue emphasis has been placed upon *perfect* competition and *complete* monopoly, particularly in view of the fact that we admit frankly that these two extreme conditions are seldom found in the actual market place. But we have adopted our method of procedure deliberately. We believe, with Professor Schumpeter, that "the theory of perfect competition [and complete monopoly] still remains a useful and almost indispensable background with which to compare, and therefore by which to understand, any other situation, however far removed it may be from it."¹ We are convinced that the forces underlying price determination can best be understood by studying in detail their operation under assumed conditions, and then examining (as we do in Chapters 20 and 21) conditions which differ from our original assumptions, and noting the effects of these deviations upon our earlier conclusions.

The Law of One Price. If buyers and sellers in a given market are well informed (as is implied in the economic concept of a market), and free competition exists (as is also assumed except when monopoly price is being considered), we have the conditions that lead to the operation of the Law of One Price. This law states that there can be but one price for a given good in a given market at a given time. Reverting to the chart illustrating the conditions of demand for and supply of cotton, we may ask why, since *some* buyers could (and would, if necessary) pay more than 20 cents for cotton, virtually the *total quantity* disposed of must sell at as low a price as 20 cents; and why, on the other hand, since *some* sellers, if necessary, would sell at less than 20 cents, all of the cotton sold brings so high a price.

The answers lie in the fact that no buyer will knowingly pay more than necessary and no seller will take less, and as a consequence 15 million bales can be disposed of only if the price is 20 cents. If this quantity were thrown upon the market at different times, different prices might be paid, but competition among sellers prevents this method of marketing. If, for example, only 12 million bales were

¹ Joseph A. Schumpeter, in *Journal of Political Economy*, April, 1934, p. 249.

first offered for sale, they would be taken at 30 cents a pound, as is shown by the chart; but the dealers having the remaining three million bales, anxious to share in this high price and willing to accept any figure not lower than 20 cents, would quickly throw their holdings upon the market, and the price would inevitably drop to 20 cents. As a consequence of this method of marketing, there can be (with a very few exceptions) but one price—a price which is dictated by the relative conditions of supply and demand. Competition among buyers tends to force the price up, and competition among sellers tends to drive it down.

Deviations from Short-Run Price. Though 20 cents a pound is the price at which the great bulk of this quantity of cotton must sell, this does not mean that there may not be occasional cases of sales at prices either higher or lower than 20 cents. For the equilibrium of demand and supply is arrived at through the trial and error method known as bargaining. In the process of bargaining it is entirely probable that some few buyers, in order to be certain of getting enough cotton to meet their needs and not knowing just how low the price will go, will make their purchases before the actual equilibrium takes place, and as a result will pay a somewhat higher price than would have been necessary, say as much as 21 or 22 cents. It is likewise possible that some sellers, willing to take a lower price than 20 cents if necessary, will dispose of their individual supplies of cotton at a little less than they might be able to get if they were to hold out somewhat longer.

For the demand curve shows clearly (as has already been pointed out) that some buyers stand ready to buy at a higher price than 20 cents, if it should seem necessary to pay more than that amount; and the supply curve shows that some sellers will sell at less than 20 cents if doubt arises as to their ability to secure so high a price. However, these unwise and unnecessary sales and purchases will be relatively few; and it seems probable that, as a usual thing, the sales that take place at prices above the point of equilibrium are counterbalanced by those that take place at prices below that point. These deviations from the short-run price dictated by the true conditions of demand and supply are due, of course, to imperfections in competition, attributable in turn to ignorance of actual market conditions. Short-run price, then, is an *ideal* price which would prevail under conditions of perfect competition. In the absence of ideal conditions, *actual prices* fluctuate about short-run price, some sales taking place

at exactly that figure, but others at somewhat lower prices and still others at somewhat higher prices.

The Law of Supply and Demand. It should be evident, from what has been said thus far, that price is the result of certain interactions of supply and demand. These important forces, supply and demand, will be examined further in the next few chapters. We may well conclude our observations on short-run competitive price determination with a generalization known as the Law of Supply and Demand. This law states that value (or price) varies directly with demand, and inversely with supply. (The reference is to *schedule* supply and demand.) Expressed in non-technical language, this means that if supply remains constant, an increase in demand will result in a higher price, whereas a decreased demand will bring a lower price; and if demand remains unchanged, an increase in supply will result in a lower price, but a decreased supply will drive the price up.

In actual experience, of course, neither demand nor supply is likely to remain absolutely unchanged; but it is not difficult to find instances of one of these forces increasing or decreasing much more rapidly than the other, with the effects that are predicted in the law of Supply and Demand. At the outbreak of the World War I, for example, there was a sharp decrease in the demand for cotton, owing to a decline in the manufacture of cotton cloth in England and elsewhere, with the result that cotton prices slumped; at the same time, there was a tremendous increase in the demand for steel which was required for munitions, shipbuilding, and so on, and prices for steel rose to unprecedented figures. Here we have concrete examples of the truth of the statement that price varies directly with demand. That price varies inversely with supply is illustrated by the behavior of dye prices during that war. With a limitation of the quantity available because dyes could not be imported from Germany, the price in the United States soared to dizzy heights. But an increase in supply depresses price. An unusually large crop of apples, or other agricultural products, again causes price to vary inversely with supply; and in a case of this kind, since supply is increased, the price of the commodity is driven down.

The tendency of price to vary directly with demand and inversely with supply is shown graphically in the two simple diagrams given here. The charts show hypothetical conditions of supply and demand for sugar in a given market. In Fig. 18 the short-run price, or market

price, as indicated by the intersection of the supply and demand curves, is 12½ cents a pound. If, now, supply remains unchanged while demand shifts, we find that price moves *directly* with demand. If demand increases, as is shown by the curve D'D', price increases to 15 cents a pound. If demand decreases, as is indicated in the demand curve D''D'', price also decreases, and sugar sells at 10 cents a pound.

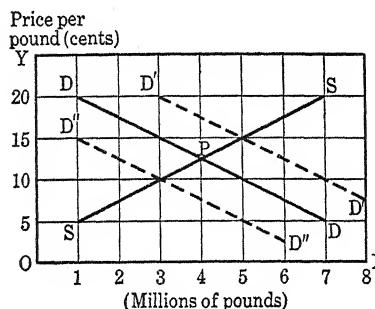


FIG. 18. PRICE CHANGES CAUSED BY CHANGES IN DEMAND.

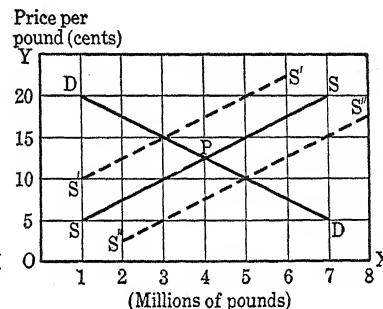


FIG. 19. PRICE CHANGES CAUSED BY CHANGES IN SUPPLY.

Fig. 19 illustrates the second part of the Law of Supply and Demand. In this diagram, demand remains constant while changes in supply take place. If supply decreases, as is shown in the S'S' curve, the price rises from 12½ cents to 15 cents; and if supply increases (see S''S''), the price declines from 12½ cents to 10 cents a pound. Thus we see that price varies *inversely* with supply.

It will be clear that simultaneous changes in supply and demand may result in the effect of one change being cancelled by the effect of the other. If we assume an increase in demand such as is indicated by D'D' in Fig. 18, to be accompanied by an increase in supply of the size pictured in Fig. 19, we find that the tendency of price to rise because demand has increased is counteracted by the tendency of price to drop by reason of increased supply, with the equilibrium of supply and demand, and therefore the market price, remaining unchanged at the former price of 12½ cents a pound.

MONOPOLY PRICE IN THE SHORT RUN

Earlier in the chapter, we noted that the costs of production play no direct part in price determination in the short run. The truth

of this observation about costs is seen with particular clarity in an examination of *monopoly price* in the short run.

Monopoly and the Limitation of Goods. In considering short-run competitive price, we assumed the existence of a stock of goods which could not be increased, nor could it be decreased *except by sale*. None of this fixed stock, for example, could, under competitive conditions, be destroyed with the thought of thus limiting the quantity and raising the price. For under competition the sellers are entirely *independent* of one another, and no one seller will be willing to destroy his holdings and deny himself the return, however small, which he could realize from its sale even at a very low price. Hence, under competition the stock will not be reduced except by sale.

But if there is only one seller in the market—a case of complete monopoly—or if the sellers, though numerous, “get together” and agree that each will destroy a stated percentage of his holdings, it may be possible through this limitation of quantity to raise the price substantially. It should be added that concerted action on the part of several sellers, as described above, falls clearly under the heading of monopoly, since it constitutes an interference with free competition.

Determination of Short-Run Monopoly Price. Let us now note the difference between short-run price determination under monopoly, and under competition as already explained. We shall find it convenient to use first the data examined in our study of short-run competitive prices for cotton. Considering, then, the case of cotton, we now assume that the total stock of 22 million bales is controlled by one individual, a monopolist, instead of by a number of competing sellers, as in the original illustration. The conditions of demand are assumed to remain unchanged. How, then, does the introduction of monopoly control affect the situation? The answer is that everything depends upon demand and its relation to the quantity the monopolist—who now controls the entire stock—decides to sell. The quantity the monopolist disposes of will materially influence the price, whereas under competitive conditions no one seller exercises a sufficiently extensive control over supply to enable him alone to affect the situation appreciably.

Since the costs of production of this stock of cotton have already been incurred, the monopolist will aim to sell the stock in such a way as to bring him the *greatest possible total gross return*, regardless of what the cotton cost him. The costs of production therefore will

have no part in determining the short-run monopoly price. The considerations influencing the monopolist will be similar to those which we said, earlier in the present chapter, would affect competitive sellers in deciding upon quantities to sell; that is, the monopolist will consider the possibility of getting a better price by holding all or a part of his stock until a later time, the promptness with which this better price is likely to be realized, the cost of storing the cotton until this later date, the chance that the cotton may deteriorate, and so on.

But an examination of the demand schedule for cotton, which appears in Table 20, indicates that the quantity that would bring the greatest possible total return is *the smallest quantity in the entire demand schedule*. For 10 million bales would sell for a *greater total amount* than 11, 12, 13, 15, 18, or 23 million bales. It is obvious, therefore, that the monopolist would not, under these conditions, sell more than 10 million bales; and if he decided to sell this amount, the price would be 40 cents a pound. The 12 million bales remaining from the original stock of 22 million bales would in this event be left in the monopolist's hands *at the close of this short run*, and would thus form a part of the stock of the ensuing period.

Of course, there is a possibility that this monopolist, expecting the price of cotton to be extremely high in the future, will decide to sell none of his stock, in which event the whole 22 million bales would remain unsold and would enlarge the stock of the following period. However, should he dispose of 10 million bales, which is certainly the largest quantity he would sell, his monopoly control would bring him monopoly profits at the expense of society—unless his costs of production happened to be as high as 40 cents a pound. From the social point of view, then, this monopoly situation would be less desirable than competition, in two ways: First, it would result in only 10 million instead of 15 million bales being made available for consumers; and, second, it would lead to consumers paying more for their cotton than they would have to pay under competition—that is, 40 cents a pound instead of 20 cents.

Price Determination for Fixed Supply. We now consider price determination for fixed supply, which is a special case of short-run supply and may be defined as *a quantity of a good that must be sold at a given time (if it is to be sold at all) at whatever price can be obtained for it.*

Let us assume, by way of illustration, that there is a fixed supply of 10,000 quarts of strawberries in a local market on a given Saturday, and that the berries will spoil if an attempt is made to hold them over until Monday. Table 21 is the demand schedule covering the situation.

Under *competitive* conditions, the whole of this fixed supply must be sold, even though a part of it would bring in larger total receipts than the whole. This is true because it is in the hands of competing sellers, none of whom will destroy all or part of his holdings without

TABLE 21. TOTAL RECEIPTS OBTAINABLE FROM SALES OF STRAWBERRIES AT VARIOUS PRICES

Price per Quart	Quantity That Would Be Bought	Total Receipts
30 cents.....	7,000 quarts	\$2100
25 cents.....	8,000 quarts	2000
20 cents.....	9,000 quarts	1800
15 cents.....	10,000 quarts	1500
10 cents.....	11,000 quarts	1100
5 cents.....	12,000 quarts	600

a corresponding sacrifice on the part of all sellers. Nor, under competitive conditions, could they agree upon a *pro rata* destruction of their several holdings, for such an agreement would turn competition into monopoly. Therefore, we may be sure that under competition this fixed supply of 10,000 quarts of strawberries would sell at 15 cents a quart, since that is the highest price at which the total stock of 10,000 quarts could be disposed of.

But under monopoly conditions, which we are now considering, the monopolist is in a position to destroy part of his stock if he finds that it would pay him to do so. If, then, we wish to arrive at the price a monopolist will charge for a commodity which, because it is perishable or for some other reason, *must be sold at a given time if it is to be sold at all*, we need only calculate the *total receipts* that could be obtained by selling, at the prices appended, the several quantities listed in the demand schedule. The quantity which, at the price given, will yield the *largest total receipts* is, under the conditions stipulated, the quantity the intelligent, self-seeking monopolist will place upon the market. Whenever this quantity is smaller than the total stock of the good, it will be profitable to

withhold the excess or even to destroy it to keep it from "spoiling the market."²

Referring again to Table 21, we see that the conditions of demand are such that the largest amount that can be realized by a monopolist controlling this stock of 10,000 quarts of berries is \$2100. This amount can be had by selling 7000 quarts at 30 cents a quart. What will happen to the remaining 3000 quarts need not concern us here. What we may be certain of is that the monopolist will not allow them to reach the market; for the demand schedule shows that the quantity that will bring maximum total receipts of \$2100 is 7000 quarts, and the monopolist, to reap the full benefits of his monopoly position, must limit his sales to that quantity. To sell 8000 quarts, for example, would mean a loss of \$100, and to sell 10,000 quarts—his complete stock—a loss of \$600.

Social Consequences of Monopoly Control. From these hypothetical cases of short-run prices under competitive and monopoly conditions, it is evident that monopoly may lead to high prices. Our competitive price for cotton is 20 cents a pound, and the monopoly price 40 cents. The competitive price for strawberries is 15 cents a quart, while the monopoly price is 30 cents. It appears that the odds are practically all in favor of short-run monopoly price being higher than short-run competitive price. There is a bare possibility that the two might be equal, but this could occur only if the monopolist decided to sell precisely the quantity that would be indicated by the intersection of the demand and supply curves under conditions of competition.

Since, in the short run, the existence of monopoly may easily lead to the destruction of economic goods in order to secure larger returns than could otherwise be had, monopoly clearly appears to be socially disadvantageous. But it is only fair to add that, in the long run, certain wastes of competition can sometimes be eliminated by monopoly control, as we noted in Chapter 8. Whether the public will benefit by such economies depends largely upon whether there is adequate governmental regulation of those industries which are not regulated by the force of free competition. On this point we

² *Time, The Weekly Newsmagazine* (August 20, 1934, p. 15) tells of "130 big French fishing smacks [that] put to sea at Douarnenez last week, every smack loaded to the gunwales with sardines. . . . A few hours later the 1,000,-000 little dead fish had been tossed into the sea . . . to force French sardine buyers, who had offered 5½¢ per lb., to pay the fisherman's agreed price of 6¢."

shall have more to say when we discuss monopoly price in the long run.

1. Define "equilibrium of demand and supply."
2. Define "short run."
3. What is the relation between short-run price and costs of production?
4. Why cannot short-run price be higher than the figure indicated by the equilibrium of demand and supply? Why can it not be lower?
5. What considerations influence sellers in deciding the price at which they will sell, and the quantity which they will offer at this price?
6. What considerations influence buyers in deciding the price at which they will purchase, and the quantity which they will buy at this price?
7. State and explain the Law of One Price.
8. State the Law of Supply and Demand.
9. Demonstrate that Figs. 18 and 19 illustrate the workings of the Law of Supply and Demand.
10. Distinguish between *fixed stock* and *fixed supply*.
11. How is price determined under conditions of fixed supply?
12. Is it correct to say that supply plays a part in determining price if the supply is fixed? Explain.
13. Why does an examination of short-run *monopoly* price illustrate especially well the fact that costs of production play no part in price determination in the short run?
14. What is the relationship between monopoly and competition?
15. Given (under conditions of fixed supply) a demand schedule for a commodity, how can we determine the price a monopolist will charge if he takes full advantage of his monopoly position?
16. From our hypothetical examples of short-run monopoly price, what would you say as to the social consequences of monopoly control in the short run?

REFERENCES FOR FURTHER READING

See list of references at the end of Chapter 16.

18. An Inquiry into the Costs of Production

*Thus far in our study of individual prices we have had no occasion to look into the costs of production of economic goods. We have simply taken for granted the existence of a quantity of a given commodity and tried to ascertain how, with a definite amount of a good available in a given market, the selling price of this good would be determined. The condition assumed was one of fixed stock—a stock incapable of being increased within the specified time limit, but one from which there would be placed upon the market such a quantity of the good as appeared to the individual sellers most likely to bring in the largest total receipts for their shares of the entire stock. These receipts would include, of course, not only the amount received from sales made during the *short run*, but also whatever was realized from the later sale of any part of the stock that might have been left over at the close of the short-run period.*

We now give some attention to the question of future production, and its effects upon price determination. This inquiry leads us into the field of costs of production, which consist of all payments that must be made for the use of productive agents needed in the operation of a given type of enterprise.

General Items Entering into "Costs." The expenses that comprise costs of production are rent paid to landowners, wages to laborers, interest to capitalists who lend funds for the purchase of plant and equipment, and an adequate remuneration to managers for directing the work of turning out and disposing of the product of the industry. But some enterprisers, in figuring their costs, show a tendency to overlook some of these items, and as a consequence have only a vague notion of their *total* costs of production. When a business man has to pay out to others rent for the use of land, interest for the use of funds invested in capital, and wages for labor and

management, he is pretty certain to include these items in his costs of production. But if, as often happens, he is using some land or capital of his own, or is himself actively managing the enterprise, there is a possibility that some of these items will be neglected in figuring the costs of doing business.

Such costs as are represented by rent and interest must be included in total costs of production, even though a business man owns outright all the land and capital he is using in his enterprise. For, in this event, he as a business man is paying himself as a landowner a sum that should appear as rent; and he is paying himself as a capitalist an amount that should enter into costs of production as interest. It matters not, then, whether land and capital are owned by the enterpriser himself or borrowed from others. A true understanding of total costs can be obtained only if, in calculating his costs of production, a business man sets down against the goods produced not only actual cash outlays, but also whatever amounts he could secure from others for land and capital owned by himself and used in his business. Moreover, the managerial ability that he expends in his own business must be charged for, since this ability, like the land and capital that he owns and uses in his enterprise, would doubtless command a price from other enterprisers, if it should be thrown upon the market.

If a man can command a payment from others when they use his land, capital, and services, he is surely justified, when using these things in his own business, in including in his costs of production an amount as great as he could obtain for these same items elsewhere. Indeed, he cannot know his costs accurately unless he does make a charge for the use of his own productive factors as well as for those that are owned by others. If he is working wholly with rented land and borrowed funds, and makes sure to enter against the business a charge for his own personal services, there is little likelihood of falling into error. For the enterpriser is fairly certain to set down among his costs of production all *actual cash outlays*; it is only those payments that he makes, or should make, to himself that are likely to be overlooked.

Specific Items of "Costs." But a business man, in reckoning his costs, usually includes in his expenditures considerably more than four items. Not only rent, interest, wages of labor, and wages of management, but such items as raw materials, power, light, transportation, advertising, insurance, legal services, taxes, and deprecia-

tion and upkeep of plant, are likely to find a place in his calculations. This fact, however, does not invalidate our statement that costs of production are made up of payments for the four factors of production. For each of these specific items—such, for example, as transportation—can be broken down into its elements; and when this is done it will be discovered that each of the items is itself the product of land, labor, capital, and management. In the final analysis, then, these are the factors of production that must be paid for if production is to be carried on; and the sum total of the payments for these factors constitutes the costs of production.

Opportunity or Alternative Costs. We shall see later that the price of a good is often closely related to the costs involved in producing the good. These costs, in turn, are composed of the payments that must be made for the use of the several factors—land, labor, capital, and business management—that are essential to the production of the good. But we are not yet out of the woods, for we have still to discover what it is that determines the amounts that owners of productive factors will be able to obtain from those who must have the use of these factors of production if they are to carry on business. This problem will be discussed at some length in the chapters dealing with the distribution of income. For the present, we shall find it helpful, in our consideration of the costs of production, to look into theory of "opportunity costs," or, as they are sometimes called, "alternative costs."

Opportunity Costs in the Case of Labor. According to this theory, any enterpriser who wishes to secure the use of a productive agent—such, for example, as labor of a given type—will be compelled, in a free market, to pay as high a price as is bid by any other enterpriser who needs this agent of production in order to carry on his business. Ordinarily, the person who has labor to sell will dispose of it to that enterpriser who makes him, all things considered, the best offer for his services. By way of simple illustration, we may say that in a given market—and this term, it will be recalled, implies accurate knowledge and free competition on the part of all concerned—a manufacturer of radio receiving sets will find it necessary to pay a cabinetmaker as large a wage as other manufacturers of this product are offering for labor of this kind.

Moreover, the cabinetmaker's skill is sought not only by manufacturers of radio sets, but by producers of phonographs, pianos, high-grade furniture, and other goods. The cabinetmaker, then, is

not compelled to sell his labor to a *particular* manufacturer of receiving sets, or, indeed, to *any* manufacturer of receiving sets. There is presented to him the alternative of working in a piano factory or in some other establishment where labor of his type is needed. He has available, then, a number of opportunities, from among which he may choose that which looks best to him. Experience teaches that, other things being equal, our cabinetmaker will lend his efforts to that line of production that pays him the highest wage. Therefore, *every* business that requires cabinetmakers will be compelled to pay workers of this type as much as is offered by *any* business; and wages for this particular kind of labor will tend to equality throughout the market.

It will be found, upon investigation, that practically all workers have labor to sell which could be used to advantage in any of several different businesses. Pick-and-shovel men are needed in ditch-digging, road-making, and in many other activities. Semi-skilled machine tenders are employed in some dozens of industries. Skilled workers, such as stone masons, bricklayers, plasterers, and electricians, are required in many—not merely a few—types of building construction. Our illustration might be extended to include nearly all kinds of labor. We see, then, that the demand for a particular type of labor comes, as a rule, not from one concern or from one industry, but from many concerns and often from several industries. From among these various “opportunities,” the worker may choose that which strikes him as being the most advantageous.

General Application of the Principle. But there are alternative uses for all four of the factors of production, and not for labor alone. The seller of land, capital, or business ability, quite as much as the seller of labor, ordinarily has available more than one opportunity for the profitable employment of his productive agent. On a given piece of agricultural land either corn or cotton can be produced; and an urban building site may be advantageously located for either a bank building or a theater. Thus, the landowner is able, to some extent, to choose the use to which his property shall be put, and his choice is likely to be dictated by self-interest. In the case of capital, again, we have a factor which, over a period of time, can be diverted from one industry to another. For if capital is less well paid in one type of industry than in another, that which is employed in the less profitable business will not be replaced as it wears out, but the “replacement fund”—built up for the purchase of new equip-

ment as the old is impaired—will be used for investment in the more remunerative field. It is scarcely necessary to suggest that business ability of a particular type can usually find employment in any of a number of different industries; for the organizing and directing skill that is essential to the success of one business is almost certain to be in demand in other businesses as well.

Opportunity Costs as an Equalizing Force. We noted, in the case of the cabinetmaker, that the industry that actually secures his services must pay him at least as high a wage as that offered by any other industry. This statement holds also for land, capital, and business ability. The industry that obtains the use of the factors of production does so at a cost sufficiently high to outbid, in the case of each factor, other industries that are anxious to use it but cannot afford to pay the price. The cost of each factor of production, then, is determined by the opportunities for profitable employment that are open to the factor; and the theory of opportunity costs states that this cost cannot be less than is bid by any form of business which offers alternative employment to the factor.

Since the cost to the business man of any single factor of production is determined by the price which the factor could command in an alternative use, it follows that the total costs of production of a commodity consist of the sum of the opportunity costs of all factors that are employed in its production. In certain parts of the southern states, for example, a given amount of land, labor, capital, and management will produce, over a period of years, an average annual yield of so many pounds of cotton. The costs of production of this cotton are made up of the opportunity costs that must be paid for the use of the productive factors. These same factors could be employed in the alternative business of corn raising, and probably in the growing of still other farm products. Cotton, then, is in active competition with corn in bidding for these scarce and useful productive agents.

If cotton is to be produced, it will be necessary for the cotton-growing industry to pay for each acre of land as high a rent, to each farm laborer as high a wage, for each unit of capital as high an interest rate, and to each active enterpriser as high a wage of management, as would be paid for these several factors if they were utilized in corn raising or any other economic activity. And, in like manner, if any corn is to be grown, the factors must be paid in this

field of production as much as they would command in cotton growing.

An Illustration of Equalization. We referred a little while back to the tendency toward equality of remuneration for all like agents of production, and we find this tendency actually working out in large degree, as is evidenced by the presence, side by side, of cotton fields and corn fields, the cotton crop being produced by factors strikingly like those employed in corn production, and these like factors being paid like prices. A condition of this kind means that, the prices of corn and cotton being what they are, it is im-

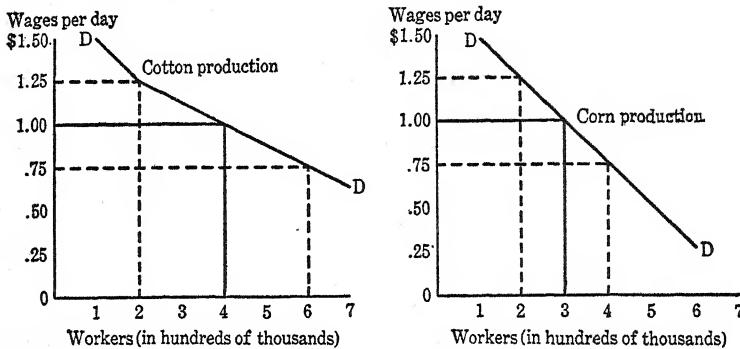


FIG. 20. OPPORTUNITY COSTS.

As illustrated by the demand schedules for laborers of a type needed in the production of both cotton and corn. Note the difference in the quantity of this factor which, at a given price, will be used in the production of each of the two crops.

material to the farmers which of the two crops is produced, since economically one pays just as well as the other. If an acre of land, plus a given quantity of labor, capital, and management, will produce 150 pounds of cotton or 30 bushels of corn, neither crop has an advantage over the other, provided the price of cotton is 20 cents a pound and corn is selling at a dollar a bushel. Both crops, then, will be produced; and the costs of production of cotton will be \$30 an acre or 20 cents a pound, while the costs of corn will be \$30 an acre or a dollar a bushel.

Equalization and the Distribution of Productive Agents. But there is no assurance that the two crops will attract *equal quantities* of each of the productive factors. What we know for a certainty is that the price paid for a given factor must be the same for both of the competing crops. The quantity of the factor that will be em-

ployed depends in each instance upon the demand schedule of each industry for the factor in question. We may take, as a single instance, the case of farm labor of a type used in both cotton and corn production. Let us suppose, for the sake of simplicity, that this kind of labor is used only for producing cotton and corn. Fig. 20 shows graphically the demand schedules for labor in cotton and corn growing, respectively. In Fig. 21 these two schedules have been combined into a total demand curve for this particular type of labor.

Fig. 21, then, shows the wages that will be paid for various quantities of labor of this kind, and Fig. 20 shows the proportions in

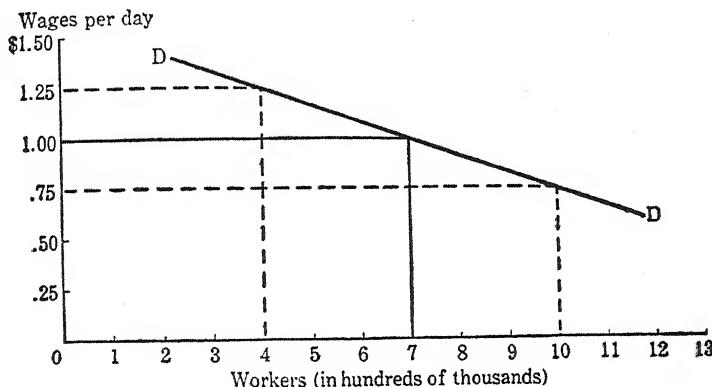


FIG. 21. TOTAL DEMAND FOR LABORERS USED IN PRODUCTION OF COTTON AND CORN.

(This demand curve is a composite of the separate curves given in Fig 20.)

which the labor supply will be divided between the two fields of production. Fig. 21 indicates that if 700,000 workers are available in this market, the wage rate will be \$1.00 a day, and it will be the same in both cotton and corn growing; but we see, by reference to Fig. 20, that of these 700,000 workers 400,000 will be employed for cotton production and only 300,000 for corn. If, under the conditions of demand here pictured, 1,000,000 laborers instead of 700,000 are seeking employment, they will receive only 75 cents a day for their services; in this instance 600,000 will be used in cotton growing, and 400,000 in the raising of corn. If, on the other hand, there are only 400,000 laborers of this particular type, the daily wage will be \$1.25, and the total number of workers will be distributed equally between cotton and corn.

It is evident, therefore, that a change in the quantity of one of the factors of production, such as labor, will not disturb the *uniformity of rate* paid by the various industries using the factor. To be sure, an increase in quantity will lower the rate, and a decrease will raise it; but there is no reason to suppose that any business will be able to secure the factor at a lower rate per unit than any other business. In Fig. 20 we see that a reduction in the number of workers from 700,000 to 400,000 would cause both cotton and corn producers to pay a higher rate for labor. But there would be no difference in the price as between the business of cotton growing and the business of corn growing. In both instances the price of \$1.25 a day would prevail.

It is equally apparent, however, that there will be a readjustment in the proportions of the total labor force that each of the two businesses will employ, if the price that must be paid labor is \$1.25 a day. For the demand curves in Fig. 20 show that an increase in wage from \$1.00 to \$1.25 will reduce by one-half the amount of labor used in cotton production, but only by one-third the amount used in raising corn. The demand for cotton, it may be suggested, is more highly elastic than the demand for corn, and the quantity purchased is consequently more highly sensitive to the influence of price changes. This being the case, it is reasonable to expect an increase in the price of cotton—necessitated by an increase in the cost of the productive agent, labor—to affect sales more quickly and to a greater extent than an increase in the price of corn brought about by this same increase in the cost of labor.

Scarcity and Costs of Production. We have several times noted the fact that price is the outcome of the demand for a good, on the one hand, and the supply of that good, on the other. In Chapter 16 we discussed in detail the way in which utility affects price through its effect upon demand. The present chapter, and the four chapters that follow, describe the manner in which scarcity, operating through supply, influences price. It should be borne in mind throughout our discussion that a price is paid for a commodity only because there is a scarcity of the commodity, and that the commodity is scarce only because the productive agents used in its making are scarce. On the supply side of price, therefore, we get back finally to the scarcity of the factors of production.

The Prices of Productive Agents. The principle of opportunity costs explains the distribution of these factors (or agents) through-

out the general field of production. First of all, the *total quantity* of a given factor—say, labor of a given grade—will be divided among industries wishing to use that factor, in such manner as to equalize the price that must be paid for the factor by all industries that employ it. When the productive agents are thus distributed and employed, there are brought into existence various quantities of different commodities, which must sell at prices sufficiently high to cover all payments for the factors used in their production. The prices obtainable for these commodities do not *directly* determine the prices that will be paid for the agents used in their production, but the prices that the commodities command do determine, on the basis of opportunity costs, the distribution of these scarce agents among the several industries desiring to employ them. The total demand for an agent is the sum of the demands of all who employ it in alternative uses. Since the agents of production are desired not *on their own account*, but only because of their usefulness in producing other goods, it is customary to say that the price paid for the use of an agent is *derived* from the prices of the finished goods in the production of which it is employed. That is, the price paid *throughout industry as a whole* for a certain kind of productive agent is derived from the prices that can be had for the several commodities which the agent helps to produce. But this price will be high or low depending upon the relationship between the *total supply* of and the *total demand* for the agent.

The Prices of Finished Goods. The price of an *individual commodity* such as cotton, looked at from the side of supply, is affected by the costs of production of that particular commodity. These costs are the total of the prices (or costs) that must be paid for the use of all factors entering into the production of the good. If the factors used in growing cotton are expensive, less cotton will be grown than would be grown if the factors were cheap, cotton will be relatively scarce, and the supply schedule of this good will be high. It is through their effects upon supply, then, that costs of production influence price. It appears from our analysis that the prices of the agents of production and the prices of the goods that these agents bring into existence are *simultaneously determined* on the basis of opportunity costs.

Fixed and Variable Costs. Total costs may be broken down into *fixed* and *variable* costs. Fixed costs are those which must be met regardless of whether the plant is running at full capacity, at less

than capacity, or not at all. They include such items as interest on investment, obsolescence, salaries of "key" executives who must be paid if they are to be held, insurance, and taxes. Variable costs are costs which vary with the volume of output. In the manufacture of shoes, for example, the leather and other materials, the skilled and common labor, and the power used, increase or decrease in quantity as production increases or decreases, though the change in variable costs is not necessarily proportional to the change in the quantity of the product. But production may, and frequently does, change to a considerable extent without affecting the size of the physical plant, the number of highly paid executives, and certain other items. Consequently, outlays of this type are given the name "fixed costs." Fixed costs per unit of product may, at any given time, be determined by dividing the total of such costs by the total number of units produced. By adding this amount to the variable costs per unit, it is possible to get total average costs of production per unit.

TABLE 22. FIXED, VARIABLE, AND AVERAGE COSTS OF PRODUCTION IN SHOE MANUFACTURE

	When Operating at Capacity	When Operating at Less than Capacity
Output.....	1000 pairs	800 pairs
Fixed costs (total).....	\$2000.00	\$2000.00
Fixed costs (per pair).....	2.00	2.50
Variable costs (total).....	8000.00	6600.00
Variable costs (per pair).....	8.00	8.25
Total average costs (per pair)....	10.00	10.75

Influence of Fixed Costs upon Average Costs. The significance of fixed costs may be seen by reference to Table 22, in which are figures relating to the production of two quantities of shoes in a factory equipped to turn out 1000 pairs a day. This plant has total fixed costs amounting to \$2000 a day, or \$2.00 a pair when distributed over the 1000 pairs of shoes that are made daily when the plant is operating at full capacity. The variable costs are \$8.00 a pair when this quantity is being manufactured. With the factory making its capacity output of 1000 pairs a day, the total average costs are \$10.00 per pair. But let us suppose that the conditions of demand are such that the output must be cut down to 800 pairs a day. The total variable costs are now lower than before because less leather,

labor, power, and other essentials are being used. However, the variable costs *per unit* of output may be higher, since the unit costs of some of these things may increase when they are purchased in reduced quantities. Assuming that these new variable costs are \$8.25 per pair of shoes, we now have \$10.75 as the total average cost per pair, since the fixed costs are \$2.50 per pair when only 800 pairs are made daily, as is shown in the table. Hence, we see the importance of running a plant at full capacity whenever fixed costs form a large proportion of the total costs of production.

Production at Less than Full Costs. Total average costs of production include both variable and fixed costs. And price, *in the long run*, must be high enough to cover both kinds of costs—that is, *total* average costs of production, since otherwise a business will languish and eventually disappear. For a shorter period, however, it may pay to produce goods even though the price received for them is less than full costs. In the case of shoe manufacturing referred to above, if conditions of demand were such that only \$9.50 a pair could be obtained, it would still pay to continue production, at least temporarily. For the fixed costs of \$2000 a day would have to be met whether there was any production or not; and, though full production at \$9.50 would mean a loss of \$500 daily, no production at all would mean a daily loss of \$2000.

If, on the other hand, production could be increased 10 per cent without any increase in the fixed costs, it would pay to manufacture the extra 100 pairs of shoes and sell them for less than the full costs of production—say at \$9.00—provided they could be disposed of in another market and not disturb the \$10.00 price for the regular output of 1000 pairs. For the additional 100 pairs would bring in \$900 a day, with a probable outlay of something less than \$800 in variable costs (because of economies effected through enlarged purchases of the variable items), and with no addition to fixed costs. It is situations of this kind that encourage business concerns to “dump” goods abroad, selling in the foreign market at lower prices than in the home market.

Average and Marginal Costs. Cost of production may also be classified as *average* or *marginal*. Average costs are *total costs per unit of output* and are obtained by dividing total costs by the number of units produced. Marginal costs are *the amount added to total costs by producing one additional unit of the good in question*.

This distinction is made clear in Table 23, which presents hypo-

theoretical total, average, and marginal costs of a farmer who specializes in the production of corn. The table shows, for example, that if 12,000 bushels of corn are produced, there will be total costs of \$7780, average costs of 65 cents a bushel, and marginal costs of 49 cents a bushel. The average costs are arrived at, of course, by dividing the total costs of \$7780 by the 12,000 units of output, or (to be exact) 64.8 cents; while the marginal costs are the difference

TABLE 23. TOTAL, AVERAGE, AND MARGINAL COSTS IN THE PRODUCTION OF CORN

Output (bushels)	Total Costs	Average Total Costs	Marginal Costs
1,000	\$ 3,700	\$3.70	...
2,000	4,250	2.12	.55
3,000	4,700	1.56	.45
4,000	5,050	1.26	.35
5,000	5,350	1.07	.30
6,000	5,600	.93	.25
7,000	5,850	.83	.25
8,000	6,140	.77	.29
9,000	6,470	.72	.33
10,000	6,850	.68	.38
11,000	7,290	.66	.44
12,000	7,780	.65	.49
13,000	8,330	.64	.55
14,000	8,940	.63	.61
15,000	9,640	.64	.70
16,000	10,440	.65	.80
17,000	11,390	.67	.95

between the total costs (\$7290) of producing 11,000 bushels and the total costs (\$7780) of producing 12,000 bushels—divided by 1000, since we are dealing here with lots consisting of 1000 bushels each. We shall use the concepts of average total costs and marginal costs in Chapter 22, in discussing the determination of competitive price in the period of current production.

-
1. There is reference in the text to "general items" that enter into "costs." What are these items? How are they related to what we have called the "factors of production"?
 2. Give several examples of "specific items" that enter into "costs," and show the manner in which they are related to "general items."
 3. State the theory of opportunity costs.

4. What are "alternative costs"?
5. Give an illustration (not taken from the text) of opportunity costs in the field of labor.
6. Show that the principle of opportunity costs applies to all factors of production.
7. Study Fig. 20, and explain precisely what is indicated by these two demand curves, in so far as equalization of costs and distribution of the productive agents are concerned.
8. Through what means does utility influence price?
9. Through what means does scarcity influence price?
10. "The principle of opportunity costs explains the distribution of the factors of production throughout the general field of production." Explain.
11. The price paid for the use of an agent of production is said to be *derived*. Derived from what?
12. What are "fixed costs" and "variable costs"?
13. It sometimes pays to produce goods even though the price received for them is less than full costs of production. Explain.
14. Distinguish between "average costs" and "marginal costs."

REFERENCES FOR FURTHER READING

See list of references at the end of Chapter 16.

19. Long-Run Competitive Prices

We are now ready to examine competitive price determination in the long run. This is a situation in which supply is of the greatest importance. For the "long run" is a period of time sufficiently long to permit, on the one hand, an increase in the quantity of a given good through an enlargement of the producing plants or the entry of new producers into the field; or to permit, on the other hand, a decrease in the quantity of the good through the voluntary or enforced withdrawal of productive agents used in making the good.

Long-Run Supply and Costs of Production. A stock of a good that can be increased or decreased, because the period dealt with is long enough to allow increases or decreases to be made in the productive capacity—that is, the land, labor, and capital—available for making the good, is called "long-run supply." We shall find that under long-run competitive conditions there is a tendency for price to equal the average unit costs of production of the *optimum* firm—the firm that, to repeat a statement made in an earlier chapter.¹ "has the lowest average cost of production per unit, when all those costs which must be considered in the long run are included." This is the case because, in the long run, firms that fail to adopt the most advantageous size of business organization, and the most efficient methods of production generally, tend to be undersold and therefore to disappear from the industrial scene.

There is nothing either profound or mysterious about price equalizing costs of production. If the price of a good continues for long to exceed appreciably the average costs of production, the profit realized by producers of the good—that is, the difference between unit sales price and average unit costs—will, under competitive conditions, almost certainly attract the attention of others looking for business opportunities. If the profit offers sufficient inducement, the firms already in the field will enlarge their productive capacity

¹ Chap. 8.

and new producers will venture into the field, the quantity offered for sale will be increased, and price will decline until the margin of profit is wiped out. Price therefore cannot, over a long period of time, exceed costs of production under conditions of perfect competition.

Nor can it continue for long to be less than costs of production, for this is a condition that would result in definite losses. Though some concerns, firmly entrenched and amply financed, can stand considerable temporary losses, others that are less fortunately situated will rather promptly be forced out of business. The result will be a decrease in the quantity produced, and a rise in price which will continue until the sales price is sufficient to cover all costs of production. The costs of production, then, are an amount about which long-run competitive price tends to fluctuate; for any considerable variation between price and production costs is corrected sooner or later by certain forces that set to work almost automatically whenever there is a discrepancy between price and costs. The net result is that the optimum firm—the firm that is "best" by virtue of having the lowest average unit costs of production—survives, while other, less effective, producers go out of business. The term "optimum firm" may relate, of course, to many concerns and not necessarily to one only. Conceivably, there might be a dozen, a hundred, or a thousand concerns with identical average unit costs of production. If so, and if there were no producers in the field that were more efficient, then these dozen, hundred, or thousand concerns would all be optimum firms. Their competition with one another would tend to keep price down to costs of production, so that price would tend to equal the average unit costs of production of the optimum firm.

The Nature of Costs of Production. Before going further, we must give attention to a question that has probably occurred to the reader, and one by which students of economics are often puzzled. Why, it will be asked, are enterprisers willing to produce goods if they receive for them no more than costs of production? For, according to a statement already made, an amount just covering these costs is as much as business men may expect in the long run to realize from the competitive production and sale of their wares. This amount, nevertheless, is sufficient to keep them interested in producing goods. For costs of production consist of a figure large enough to cover all payments that must be made in order to secure

the several factors essential to the productive process, including (as we have said) wages of management.

If total receipts from the sale of a product—that is, quantity times unit price—cover all necessary outlays, there is no reason why production should not be continued indefinitely. Of course, a business concern cannot hope to survive in the long run unless it can pay for the use of land, labor, and capital, as much as any other business can and will pay; for a failure to match the offers made by other enterprisers for the use of land, labor, and capital would inevitably result in the transfer of these factors to businesses presenting to the owners of the factors larger opportunities in the way of remuneration.

The Balancing of Profits and Losses. Owing to the existence of business risks (which we examined in Chapter 9), it is seldom possible to arrange matters so that, at any given moment, receipts will *exactly* equal costs of production. They will at times exceed costs slightly, and at other times be somewhat less than costs. Obviously, business success depends upon the profits of "fat years" being in the long run at least as great as the losses of "lean years." But it is likewise true that if profits consistently exceed losses, the surplus of profits over losses, as we have already noted, will result in fresh competition and the eventual elimination of the surplus. For (it may be repeated) if total receipts could be made year by year to equal the total costs of production, there would be no need at all for profits.²

LONG-RUN COMPETITIVE PRICE UNDER CONDITIONS OF CONSTANT COSTS

Commodities are produced under conditions of (1) constant costs, (2) increasing costs, or (3) decreasing costs. We shall treat, in turn, long-run price under each of these three conditions. It will be found, as we have already said, that price in the long run tends to equal the average costs of production of the optimum firm; and this is true under all three of the conditions listed above.

Characteristics of Constant-Cost Industries. The simplest of these conditions is that of constant costs. The term "constant costs" does not refer to a uniformity in costs as between various producers—a uniformity which is one of our conditions, however, since we are employing the concept of the optimum firm—but to a uniformity of

²We shall examine this question again when we discuss the theory of profits (in chap. 29).

costs *per unit of product*, regardless of whether the industry is organized to turn out many or few units.

It should be stated at the outset that this condition is one which is difficult to find in actual business practice. And yet there are some few industries in which an increase or decrease in the quantity produced does not change appreciably the costs of production per unit. These are businesses in which raw materials and machinery play a minor part, while labor is of great importance. Hand-made toys, hand-made cigars, and made-to-order clothing are commodities produced under substantially the conditions just outlined. It is entirely possible that a considerable increase or decrease in the production of any of these articles *by the industry as a whole* would leave the costs of production per unit practically unaffected. It is improbable, however, that the production of any commodity could be increased or decreased indefinitely without some advantage or disadvantage appearing, which would manifest itself in the form of either lower or higher unit costs.

An Example of Constant Costs. Let us take, by way of illustration, the manufacture of neckties that are strictly hand-made. The supply curve, SS,³ in Fig. 22 indicates that these ties, regardless of the quantity produced, can be made at a cost of \$2.00 each. The demand curve, DD, cuts the supply curve at the point P. This means that 50,000 neckties can be sold at \$2.00 each, and that 50,000 can be produced at \$2.00 each. Since they *can* be produced at that cost, they *will* be produced in that quantity in the long run, if conditions of demand favor an output of this size. We are justified, therefore, in saying that the price paid in the long run for the 50,000 neckties will tend to be \$2.00 each, which is equal to average unit costs of production.

If demand had been greater than we have supposed—as great, say, as is suggested by the demand curve D'D'—manufacturers of neckties would have adjusted their output to meet this larger demand, and we should have had the production and sale of 70,000 ties, but still at \$2.00 each. For in order to produce the 20,000 addi-

³ Long-run supply curves, though labeled SS, may quite properly be regarded also as cost curves. For they represent the various quantities which the optimum firms, if given ample time to make necessary adjustments, could produce at various prices. Since the long-run concept provides ample time, we may take it for granted that these firms *will* supply these various quantities at their respective prices, if demand changes. Our SS curves therefore are true cost curves, as well as supply curves.

tional ties our firm would simply have bought 40 per cent more material, rented 40 per cent more space, hired 40 per cent more workers of all kinds (including managers), and added 40 per cent to the very simple "tools"—scissors, needles, and the like—used in manufacturing hand-made ties. The result would have been a 40 per cent increase in total costs, and also a 40 per cent increase in total output, with, of course, the same (or *constant*) costs per unit of product.

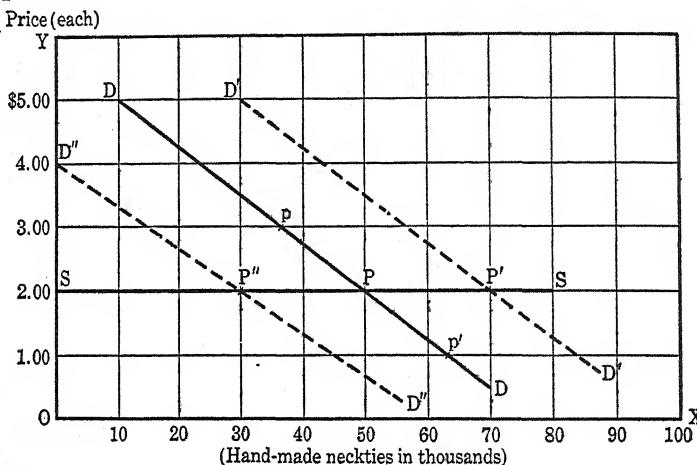


FIG. 22. LONG-RUN COMPETITIVE PRICE UNDER CONDITIONS OF CONSTANT COSTS.

An increase or decrease in demand does not affect the price.

D'D'' shows that a smaller demand would, again, have left costs of production, and therefore price, unchanged. For under these conditions of demand, 30,000 neckties would have been bought at \$2.00 each, and our supply curve shows that this quantity would likewise have been produced at that figure. Production in the long run may be relied upon to adjust itself to conditions of demand. If, with DD representing the actual conditions of demand, only 36,000 ties had been manufactured, they would have sold, as our figure shows, at \$3.00 each (see p); and if 64,000 had been produced they would have sold at \$1.00 each (see p'). But a maladjustment between production and demand could not exist in the long run, since it would correct itself fairly promptly; for the \$3.00 price (and \$1.00 profit) would attract new enterprisers, while the \$1.00 price (and \$1.00 loss) would discourage many producers and force some out

of business. In the long run, therefore, price tends to equal costs of production; and under conditions of constant costs price tends always to be the same, whether output is large or small.

LONG-RUN COMPETITIVE PRICE UNDER CONDITIONS OF INCREASING COSTS

Increasing costs are most apparent in lines of economic activity that employ large quantities of natural resources, or raw materials that are produced in large part through the use of much land. If inferior coal mines or oil wells must be called into use to provide society with all the coal and petroleum its members insist upon having, the use of these poor mines and wells will probably result in higher average costs of production. And if increases in population lead to increased demand for agricultural products, it sometimes becomes necessary to cultivate land that is but poorly adapted to growing the required crops; as a consequence the average unit costs of production of wheat, corn, cotton, and other farm products are higher than they would be if smaller quantities were produced.

An Example of Increasing Costs. We shall take, for our example of increasing average costs, the production of wheat, though any other agricultural crop would answer the purpose equally well, as would also certain lines of manufacture and public service. There is some land in the United States on which 50 bushels of wheat per acre can be grown, while the same amount of capital and labor employed on other wheat land produces but 15 bushels, or even less. But superior wheat land is scarce, and if the demand for this grain is so great as to require the use of inferior land, the average costs of production are bound to be higher than they would be if the total amount of wheat grown in this country were small.

Fig. 23 shows that growers of wheat could produce at average unit costs varying from 50 cents to \$1.50 per bushel, the average costs depending upon the quantity the wheat-growing industry has been organized to produce. If it were organized to produce only 100,000,000 bushels, the average cost of production would be 50 cents. But this quantity, according to the demand curve DD, would command a price of \$2.00. Since we are considering price in the long run—a period sufficiently long to permit production to adjust itself to conditions of demand—it is unthinkable that there should long be a discrepancy between price and average costs of production. For in this "long run," producers would have moved out to less

and still less fertile wheat lands and produced there at higher average costs, just so long as these costs were no greater than the price obtainable for their product. The diagram shows that, in adjusting their productive forces to conditions of demand, they stopped at the point P, at which point the industry was organized to produce 750,000,000 bushels at an average cost of \$1.20; and that this quantity could be sold at \$1.20 a bushel. If demand—by reason, let us suppose, of a large population—had been so great as to be represented by the demand curve D'D', the average costs of production would have

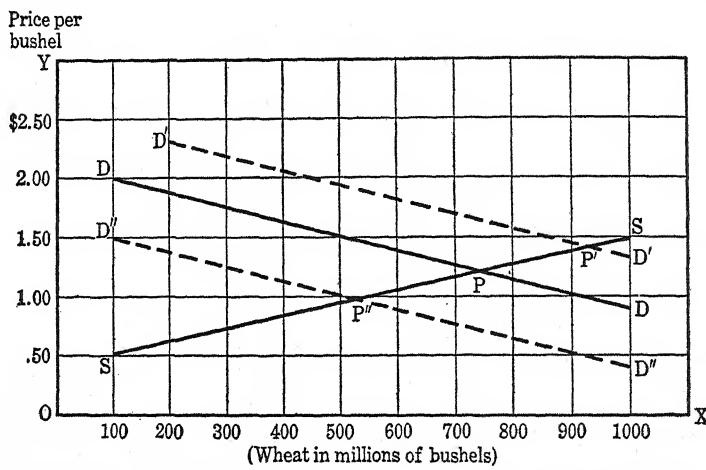


FIG. 23. LONG-RUN COMPETITIVE PRICE UNDER CONDITIONS OF INCREASING COSTS.

An increase in demand raises the price; a decrease in demand lowers the price.

been \$1.40 (see P'), and 920,000,000 bushels would have been produced at an average cost of \$1.40, and sold at this figure. If, on the other hand, the conditions of demand had been those indicated by the curve D''D'', 540,000,000 bushels would have been produced at an average cost of \$1.00 per bushel, and would also have sold at \$1.00.

Industrial Reorganization in the Long Run. The costs of production with which we are here dealing are, of course, the average costs per unit of output, which are found by dividing total costs of production by the number of units produced. According to Fig. 23, the total cost of producing 100,000,000 bushels of wheat are \$50,-

000,000, making the average costs 50 cents per bushel; the total costs of 750,000,000 bushels are \$900,000,000, with an average of \$1.20 per bushel; and so on.

It is important to note that we assume, in discussing long-run competitive price, that *every substantial change in the quantity of production has been brought about through a reorganization of the industry*—that is, through a readjustment of the forces of production to the changed conditions of demand.

If 750,000,000 bushels of wheat are to be produced instead of 100,000,000 bushels, the readjustment that is necessitated in getting out the larger quantity increases the total costs of production to a greater extent than the quantity itself is increased, and the average unit costs rise. Without attempting to give an adequate explanation of this increasing cost, we may suggest that the larger output involves the cultivation of inferior land or the more intensive use of the better grades of land, with the result that diminishing returns manifest themselves impressively in the form of both higher total and average costs per bushel of product.

Land and Increasing Costs. Increasing costs, then, are chargeable to a scarcity of productive agents of high grade, and this scarcity becomes increasingly serious as the consuming public demands more and more units of a finished commodity that requires in its production the use of agents that cannot themselves be increased in quantity. It is on this account that commodities, in the production of which land is an important factor, are usually subject to increasing costs; for land of the highest quality is extremely limited in quantity, and as poorer pieces of land are called into use (because of increased demand for the finished goods) efficiency in production declines and average unit costs of production rise. This is a matter upon which we shall touch again in our discussion of rent from land.

LONG-RUN COMPETITIVE PRICE UNDER CONDITIONS OF DECREASING COSTS

We consider now a condition of supply which is in direct contrast to that of increasing costs. There are, happily, some lines of production in which an increase in output brings about a lower, rather than a higher, cost per unit of product. In our discussion of constant costs we saw that price may be relied upon to remain unchanged—because average unit costs of production are unchanged—

whenever an increase or decrease in output does not disturb the *relative proportions* or the unit costs of the productive agents. Once the best possible combination of the productive factors has been attained, any attempt to increase output, by employing more of certain factors without employing more of all, would inevitably lessen the efficiency of production,⁴ and consequently increase the average costs of production. A reduction in output would have a similar effect if it upset the "ideal proportions" of the productive agents.

The growing of wheat, as is shown in our last example (see Fig. 23), was more costly per average unit when a large quantity was produced, because the additional units of capital and labor employed in growing the larger quantity were not accompanied by an equal number of units of high-grade wheat land, but were used in conjunction with units of inferior wheat land. This example illustrates the truth of the first part of Professor Marshall's statement to the effect that, while the part nature plays in production shows a tendency to diminishing returns which result in increasing costs, the part man plays shows a tendency to increasing returns which bring decreasing costs.⁵ If, in extending the cultivation of wheat to wider areas, it were feasible to adopt better agricultural methods which, though previously known, were impracticable until more product was demanded, then the diminishing returns due to the use of inferior land might be counteracted by the increasing returns resulting from the economies realized through a better use of labor and capital. It is in those enterprises in which men and machines are employed extensively—as, for example, in manufacturing industries—that (as Professor Marshall suggests) we find the most impressive instances of decreasing costs.

An Example of Decreasing Costs. Automobile manufacture, which provides so many striking illustrations of modern economic tendencies, has shown itself to be an industry in which increasing returns (or decreasing costs) are realized. The phenomenal growth in the sale of automobiles during the past three or four decades has given automobile manufacturers an unparalleled opportunity to employ minute specialization and extensive mechanization, and to witness their influence upon costs of production. The ability to dispose

⁴ See the Law of Variable Proportions in chap. 5.

⁵ Alfred Marshall, *Principles of Economics*, London, Macmillan & Co., Ltd., 1930, 8th ed., p. 318.

of a progressively larger output has enabled manufacturers to take advantage of many economies, and thus reduce average costs and selling price. For these reasons, we shall draw upon automobile production for our example of price determination under decreasing costs, recognizing, at the same time, that the industry is not an ideal example of competitive production, since there are differences in the products turned out by the manufacturers in each of the several "price classes."

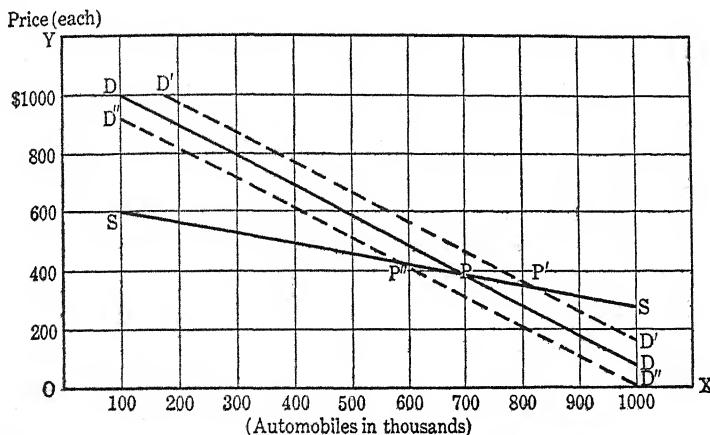


FIG. 24. LONG-RUN COMPETITIVE PRICE UNDER CONDITIONS OF DECREASING COSTS.

An increase in demand lowers the price; a decrease in demand raises the price.

In Fig. 24, we have a hypothetical supply curve representing the average costs at which various quantities of automobiles can be produced. These average costs range from \$600 each in the case of an output of 100,000 cars, to \$280 each when production reaches 1,000,000.

This condition, then, is one of decreasing costs, with each increase in production bringing fresh economies, lower average costs, and therefore a lower selling price. Under the conditions set forth in our diagram, 700,000 cars would be produced at an average cost of \$400 each (see P'), and because of competition would sell at that price. Had there been a smaller demand, such as that indicated by the curve D''D'', only 580,000 automobiles would have been manufactured, and the average costs and selling price would have been

\$440 each (see P''). If, on the other hand, the conditions of demand had been those shown in D'D', production would have been 800,000 cars with average costs and selling price (see P') at \$360. Obviously, this sort of thing cannot go on indefinitely; in every industry there is a point beyond which a further increase in the quantity produced will not result in a reduction in unit costs of production.

LONG-RUN COMPETITIVE PRICE UNDER CONDITIONS OF JOINT COSTS

We now consider the case of commodities that have a common origin and are produced not independently but jointly. Cotton fiber and cottonseed are "joint products," in the sense that one cannot be produced without the other; and this is true also of wheat and straw, meat and hides, butter and buttermilk, and many other articles.

If one of the products is so plentiful as not to command a price—as was once the case with cottonseed in the South and straw in the "wheat belt"—there is no problem of joint costs. When cottonseed is so lightly regarded as to be thrown away, and straw is burned to get rid of it, they certainly play no part in costs or in price determination. But when cottonseed, for example, is sufficiently desired and sufficiently scarce so that it—as well as the fiber—commands a price, the question arises how the price of each is determined. This, question suggests, as questions of long-run price always suggest on the side of supply, an examination of average unit costs of production. And here we come face to face with joint costs, because we are dealing with two commodities that are produced jointly. A grower of cotton cannot produce cotton fiber without at the same time producing cottonseed, nor can he produce cottonseed without producing cotton fiber. The operator of a creamery cannot make butter without producing buttermilk, nor is he likely to produce buttermilk without making butter.

An Example of Joint Costs. How, then, is it possible to separate the costs of production of two articles that are jointly produced? Let us take, by way of example, the production of butter and buttermilk. Every item of cost, down to the final emergence of the butter in the process of churning, is necessary whether only butter, only buttermilk, or both butter and buttermilk, can find purchasers. Since all the costs incurred contribute to the production of both commodities, and since no part of the cost is specifically chargeable to either, it is quite impossible to separate these joint costs and allocate to each its share, except on a purely arbitrary basis. The best we can do,

therefore, is to treat them frankly as inseparable, and speak of the average costs of production of various quantities of the *joint product* as "joint costs." The unit to be considered is not a pound of butter or a quart of buttermilk but a combination of the two. When butter is churned from cream of a certain quality, it is found that a given quantity of the cream will yield approximately one pound of butter and one quart of buttermilk. We shall accept these figures as substantially correct, and in our explanation of joint costs shall think of a *unit of joint product* as consisting of one pound of butter and one quart of buttermilk.

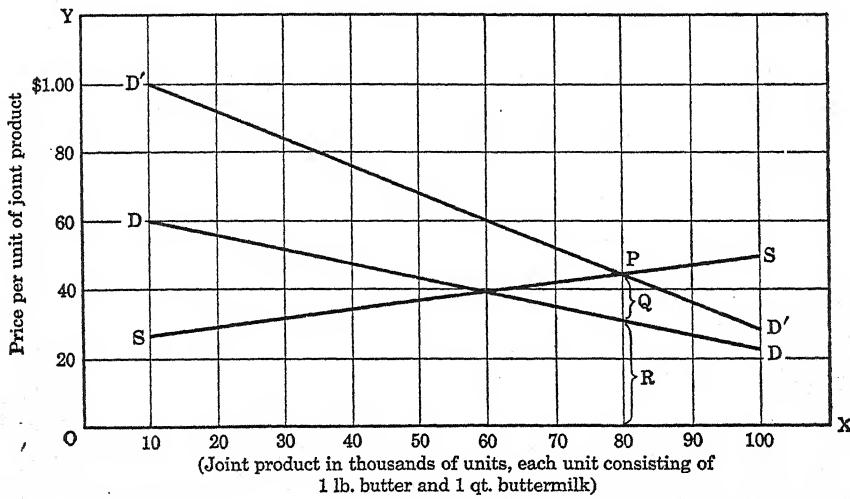


FIG. 25. LONG-RUN COMPETITIVE PRICE UNDER CONDITIONS OF JOINT COSTS.

The price of each *unit of joint product* equals the average unit costs of production of the total quantity produced. The prices of the *individual commodities* jointly produced are determined by conditions of demand for and quantities of these several commodities.

Average Costs of the Joint Product. Turning now to Fig. 25, which is a graphic presentation of price determination under conditions of joint costs, we note that SS is an ascending supply curve, which indicates that the production under consideration is one of increasing costs. A joint product, like a commodity that is produced independently, will in the long run tend to sell at a price equal to average unit costs of production. The supply curve in Fig. 25 shows the average costs at which different quantities of the joint product could and would be produced in the long run, assuming favorable

conditions of demand. But when we see that, for example, 28 cents per unit would be the average cost if 10,000 units of the joint product were made, we must remember that this quantity means 10,000 pounds of butter plus 10,000 quarts of buttermilk. Similarly, 50 cents would be the average cost *per unit of the joint product*—that is, for one pound of butter and one quart of buttermilk—if 100,000 units of the joint product (100,000 pounds of butter and 100,000 quarts of buttermilk) were produced.

Thus far, the problem has been an exceedingly simple one. Having no way to separate the average costs of producing butter and buttermilk, we have not attempted to deal with these costs separately, but have been content to say that the price received for both commodities must cover the average costs of production of both. If, as is indicated in Fig. 25, 80,000 units of the joint product were produced, then each unit (consisting of one pound of butter and one quart of buttermilk) would cost 44 cents, and would tend in the long run to sell for 44 cents. So far, so good. We are now through with costs of production as they relate to this particular problem, but we have yet to deal with the individual prices at which each of the commodities jointly produced would sell. We know that one pound of butter plus one quart of buttermilk would cost and sell for 44 cents, but on what basis would this total of 44 cents be divided between the two commodities?

The Division of Average Costs into Prices. The answer to this question will be found through an examination of our demand curves. The total demand curve, D'D', is constructed in a peculiar way. First of all, the curve DD was drawn to represent the demand for butter. This curve shows, for example, that 10,000 pounds of butter could be sold at 60 cents a pound. But the production of this quantity of butter would result in the production also of 10,000 quarts of buttermilk. Hence, we have drawn the total demand curve, D'D', to include the demand for buttermilk. The distance from the curve DD to the base line, OX, gives us the price per pound at which any given quantity of butter would sell; the distance between the curves DD and D'D' indicates the price per quart at which any given quantity of buttermilk would sell. D'D' therefore shows the demand for *both* butter and buttermilk. We see, then, that 10,000 pounds of butter would sell at 60 cents a pound (the distance between DD and OX), and 10,000 quarts of buttermilk would sell at 40 cents a quart (the distance from DD to D'D'). This means, of course, that the sale of

10,000 units of the *joint product* would take place at \$1.00 per unit, and that of this amount 60 cents would be paid for the pound of butter and 40 cents for the quart of buttermilk.

Let us consider, now, the total demand curve, D'D', in relation to the supply curve, SS. These curves intersect at the point P, showing that 80,000 units of the joint product would sell at 44 cents per unit. The distance from OX to the DD curve (indicated by the brace, R) tells us that the butter portion of each unit of the joint product will command 30 cents, while the distance from the DD curve to the D'D' curve (indicated by the brace, Q) shows that the buttermilk portion of each unit of the joint product will command 14 cents.

Effects of Unequal Changes in Demand for Commodities Jointly Produced. This analysis of joint costs brings us to the conclusion that the total price received for the joint product will, in the long run, equal the average costs of production of the joint product. The separate costs of the several products jointly produced cannot be determined, but the price of each separate commodity can be ascertained on the basis of the supply of and the demand for that commodity. A change in the demand for one of the two commodities produced jointly, without a corresponding change in demand for the other, affects the prices of both, but in opposite directions.

If, in the long run, the demand for buttermilk should decline to such an extent that 80,000 quarts could not be disposed of at 14 cents a quart, but only at (say) 8 cents, this large quantity of the joint product would not continue to be produced, unless at the same time the demand for butter increased sufficiently to bring the price for 80,000 pounds up to 36 cents a pound. Otherwise, the total price of a unit of the *joint product* would not equal its average cost of production, as it must do if it is to be produced in the long run. If the demand for butter did not increase in the manner and to the extent indicated above, a smaller quantity of the joint product would, in the long run, be turned out. If, for example, the quantity were 75,000 units at the average joint-unit cost of 42 cents (as is shown on the SS curve), and if there were no change in the DD (butter) demand curve, it is clear that butter would sell at 32 cents a pound and buttermilk at 10 cents a quart. The industry would, of course, have been reorganized—in the long-run period of which we are speaking—to meet the conditions of changed demand. An *increase* in the demand for buttermilk (in place of the decrease described above), if there were no change in the demand for butter, would cause a rise in the

price of buttermilk and a decline in that of butter, and eventually a readjustment which would cause the total price of a unit of the articles jointly produced to equal their average total cost of production.

Costs of Special Processing. We assumed, in our illustration of butter and buttermilk, that no part of the joint costs was specifically chargeable to either of the two commodities, in the sense of being unnecessary in the event that one of the two should not be salable. But it is safe to say that this exact situation seldom exists. Though we have gone ahead in our discussion on the basis that butter and buttermilk are completely "produced" when they have been separated by churning, we may now suggest that ordinarily the two products are not sold as they come from the churn; the butter is "worked" and packed in cartons, while the buttermilk may be bottled and delivered to soda fountains and restaurants for retail distribution. The costs of working and packing the butter may be determined without difficulty, since they apply not to both of the joint products but to one only; and the costs of bottling and delivering the buttermilk may likewise be ascertained.

Costs such as these are directly chargeable to the commodity in the "processing" of which they are incurred. And a commodity that is jointly produced in the main, but requires further processing before its production is completed, will not be bothered with unless it can be sold at a price that is at least sufficient to cover the costs of special processing. If, for example, the average cost of bottling and delivering the buttermilk were three cents a quart, all buttermilk that might be sold would have to bring, in the long run, a price of at least three cents; otherwise, it would cease to be specially processed and marketed.

Joint Supply and Joint Demand. What we have been calling "joint costs" are often referred to as "joint supply." Both terms are appropriate, since both relate to two or more commodities or services that are produced jointly.

Without describing further the conditions of joint supply, we may consider briefly an analogous situation in the field of demand. Some kinds of economic goods are consumed, and therefore demanded, jointly; and for such goods there is said to be a "joint demand." Bread and butter, collars and neckties, pencils and paper, needles and thread, and countless other commodities are so commonly "paired" that their close relationship in consumption is obvious.

Joint demand applies, also, to producers' goods. Builders require stone, lumber, hardware, plaster, paint, glass, and a score of other materials in practically every construction project; bakers use flour, yeast, and salt in making bread; newspaper publishers must have paper and ink to feed their presses; and farmers employ seed, fertilizer, and insecticides *jointly* in producing a given grain crop.

It is clear, then, that what a purchaser often wants is not an individual good, but a number of different kinds of goods to be used in combination—and this is true of commodities and services for use in both consumption and production. Whether a consumer buys several commodities (say, grapefruit, bread, butter, eggs, and coffee) and combines them himself, or purchases a combination from an enterpriser (as he would do if he ate breakfast at a restaurant), the transaction is one of joint demand. Similarly, the demand for a pleasure car becomes (in the hands of an automobile manufacturer) a joint demand for steel, rubber, glass, and a host of things that enter into the production of motor vehicles. Since producers *always* employ land, labor, and capital—and sometimes many varieties of each—in their enterprises, joint demand is the rule rather than the exception.

Joint Demand and Price. In our study of joint costs (or joint supply), we saw that the long-run competitive price of a unit of goods jointly produced (for example, one pound of butter plus one quart of buttermilk) tends to equal the cost of production of that unit of joint product. In like manner, the price of a unit of goods which consists of two or more commodities employed together in consumption or in production tends to equal the cost of production of that unit. In the case of joint demand, but not of joint supply, the cost of each of the "joint" commodities is determinable, since each of the commodities used jointly is itself ordinarily produced separately; and by adding these individual costs, the cost of production of the combination is arrived at.

If automobiles were produced under conditions of strict competition, the long-run price of an automobile would tend to equal its cost of production—that is, the cost to the producer of the commodities and services used in its manufacture. Hence, this price would be affected by changes in the prices paid for steel and other materials demanded jointly by the automobile manufacturer. If steel should rise appreciably and permanently in price, the price of automobiles would increase and (assuming no change in their demand) fewer

would be sold. A decline in the price of steel, or of any of the materials jointly used, would have an opposite effect.

But unless the price rise in steel were very substantial, it is unlikely that the price of automobiles would be affected greatly, since steel is only one of many materials that enter into automobile manufacture. Of course, a simultaneous rise or fall in the prices of all the materials jointly demanded might cause a serious increase or decrease in automobile prices. And an increase or decrease in the demand for automobiles would tend to influence the demand, and hence the price, of steel and other materials that go to make up an automobile.

"Composite Supply" and "Composite Demand." A given type of human want may often be satisfied fairly well by any of a number of commodities or services. Hunger will yield to any of hundreds of kinds of food, and these may be thought of as forming a "composite supply" of commodities to meet the food demands of hungry people. If the demand is more specific, requiring (say) meat for its appeasement, the composite supply may include beef, lamb, veal, poultry, and fish. Railroads, buses, street cars, and taxicabs offer a composite supply of transportation; coal, petroleum, and electricity constitute a composite supply of power; and so on. Commodities and services that are almost equally acceptable to consumers, and are therefore ready substitutes for one another, provide the best examples of composite supply.

"Composite demand" is the sum or aggregate of the individual demands for a given commodity or service. In the preceding chapter we discussed the demand for laborers needed in both corn and cotton production. If we had included the demand for this type of worker in every conceivable field of a given market, we should have arrived at composite demand for this kind of labor. It should be apparent, therefore, that we have been dealing with composite demand whenever we have employed a demand schedule or demand curve, since such a schedule or curve, if complete, necessarily includes the demand of every possible purchaser for every possible use.

DYNAMIC HAPPENINGS IN THE LONG RUN

It will be remembered that we defined the long run as "a period of time sufficiently long to permit, on the one hand, an increase in the quantity of a given good, through an enlargement of the producing plants or the entry of new producers into the field; or to

permit, on the other hand, a decrease in the quantity of the good, through the voluntary or enforced withdrawal of productive agents used in making the good." We must now make clear the fact that the long run is an ideal concept, just as the notion of a perfect vacuum in the study of physics is an ideal concept. It is not, then, a condition one is likely to meet in real life, any more than a perfect vacuum is such a condition, but it is a very useful concept nevertheless. When we leave the economics laboratory for the world of business, we come across a host of forces that are likely to influence, to a greater or lesser degree, the particular economic forces that we have singled out for examination. However, we are entirely justified in saying—as we have so often said—that long-run competitive price *tends* to equal the average unit costs of production of the optimum firm.⁶ Another way of putting it is this: If at any time, under competitive conditions, the price of a good does not equal its average costs of production, certain forces will begin to operate to cause the price to move in the direction of its average costs of production.

In our study of short-run price, we emphasized the fact that there is no necessary relationship between short-run price and costs of production. Goods having once been produced, they will be sold on the market at the highest price the holders can secure; and this price, of course, will either equal average unit costs of production or be greater or less than these costs. If, in a particular instance, the price received is exactly equal to costs of production, producers will be encouraged to continue their operations as in the past, but there will be no special tendency to increase their output. If price is less than costs, the situation will be discouraging, and some producers may be forced out of business. If, however, price is higher than costs, the profit that results will, in all probability, stimulate production, as we have already noted.

Dynamic Conditions in Agriculture. Let us consider these three possibilities as they work out in the case of an agricultural product, such as cotton. This commodity, like practically all economic goods, is produced in anticipation of demand. It is produced, moreover, by thousands of individual farmers, most of whom have but a slight idea—if, indeed, any idea—of the quantity of cotton being raised throughout the world, and the probable conditions of demand

⁶ To avoid unnecessary repetition, we shall omit the words "of the optimum firm" in the remaining pages of the present chapter. It should be understood, however, that in speaking of costs of production in the long run we are referring always to the costs of the optimum firm.

that will prevail when the crop is harvested and sold. In the absence of accurate knowledge on such matters, and because of unpredictable changes in weather conditions, it would be little short of marvelous if the short-run price of cotton were to equal precisely its average unit costs of production. If, however, the short-run or market price *should* happen to match these costs exactly, both amounting to (say) 20 cents a pound, the quantity of cotton planted in the following year would probably approximate very closely the amount raised in the year we have been discussing.

But if the market price, because of the large stock available or a decrease in demand, should be only 18 cents, or two cents less than costs of production, this loss would almost inevitably bring about a reduction in the acreage allotted to cotton-growing in the following year. If, on the other hand, because of an unexpectedly small stock or an increased demand, the market price should be 22 cents a pound, this two-cent margin of profit would result in larger plantings in the future; for those who had benefited by this profit would be likely to increase the acreage given over to cotton, and others would be attracted to this field of production. Producers, then, are *in the long run* continually making adjustments in productive capacity, in the hope that conditions of supply and demand will bring them a price at least as great as their costs. And it is these adjustments that are instrumental in driving price toward the average unit costs of production.

Graphic Presentation of Dynamic Happenings in Long-Run Price Determination. Figs. 26 to 29, inclusive, show graphically how a sudden change in demand may disturb temporarily the normal tendency of price to equal costs of production in the long run, and the way in which, through a change in productive capacity, the disturbance is overcome so that price and average unit costs of production again become equal.

Let us suppose Fig. 26 to picture the normal long-run conditions of supply and demand in the case of bread, which we assume to be produced under conditions of constant costs. The costs of production, and likewise the selling price, are here seen to be 8 cents a loaf. The quantity offered and purchased at this figure is 25,000 loaves. But this arrangement is changed by an increase in demand that is indicated by the demand curve, D'D', in Fig. 27. This increase in demand, in the absence of an immediate, corresponding increase in supply, has driven the price up to 12 cents. Because only 25,000

loaves are to be had, and because buyers stand ready to take this quantity at 12 cents a loaf (as is shown by the new demand curve, $D'D'$), the sellers of bread enjoy, for the moment, a large margin of profit—4 cents a loaf.

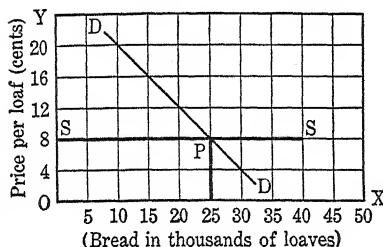


FIG. 26. DYNAMIC HAPPENINGS IN LONG-RUN PRICE DETERMINATION.

The diagram shows price equal to costs of production, as it tends to be in the long run. The situation here pictured is antecedent to that shown in Fig. 27.

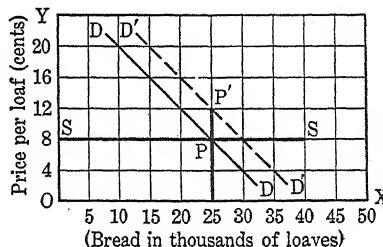


FIG. 27. DYNAMIC HAPPENINGS IN LONG-RUN PRICE DETERMINATION.

An increase in demand, with no immediate change in supply, has forced a temporary rise in price from 8 to 12 cents.

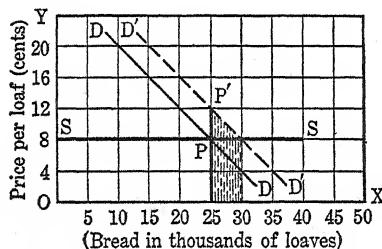


FIG. 28. DYAMIC HAPPENINGS IN LONG-RUN PRICE DETERMINATION.

This diagram pictures the period of adjustment. The dotted lines show price gradually moving from 12 to 8 cents, as progressively large quantities of bread are made available by an increase in baking equipment.

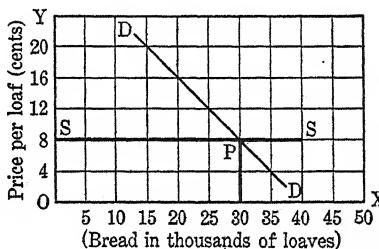


FIG. 29. DYAMIC HAPPENINGS IN LONG-RUN PRICE DETERMINATION.

The adjustment is now complete. Price once more equals costs of production, but the quantity sold is now 30,000 loaves instead of 25,000 loaves, as was the case in Fig. 26.

But the prospect of securing profit attracts new enterprisers into the field, and the number of loaves available increases gradually from 25,000 to 30,000. The broken vertical lines in Fig. 28 show this increase in production, which results from the opening-up of new bakeries. Each increase in the quantity offered tends to pull down the price. Thus it falls from 12 to 11, to 10, to 9, and finally to 8

cents a loaf, when it again equals costs of production. The adjustment is now complete, and the situation is once more a normal long-run condition, which is indicated in Fig. 29.

Changes in Demand. So far as changes in demand are concerned, it need only be suggested that there is no assurance that demand, year after year, will remain fixed. It may easily be affected by changes in population, changes in desires, or changes in individual money incomes. Demand may either increase or decrease; and this fact adds greatly to the uncertainty of the situation and to the risks that producers continually face. Enterprisers never know exactly what conditions of demand will prevail in the coming year (or month) in which the goods now in course of production must be sold. They never know exactly how much of the commodity will be supplied by other enterprisers. And yet they are continually making estimates of the conditions of demand and supply that may prevail at some future time, and are producing on the basis of these estimates. In this process of "guessing the future" and adapting productive forces to anticipated conditions, they are sometimes hampered by a fixity of plant and equipment. But in the long run these limitations do not exist, since (by definition) there is ample opportunity in the long run to increase or decrease productive capacity.

Dynamic Conditions in Manufacturing. It is especially difficult to make adjustments quickly in businesses that involve the use of large quantities of capital. We may consider, by way of illustration, a rapid increase in the demand for rayon cloth—an increase such as took place in the last decade or so—attributable to one of those changes in fashion by which our textile industries are so often seriously disturbed. Rayon manufacturers, to meet the increased demand and gain large profits, will endeavor to speed up production. In the long run, of course, if the popularity of rayon clothing continues, it will be possible to reorganize the industry and increase production greatly by the building of new mills, the purchase of new machinery, the development of an additional labor force, and like changes. But for a considerable time, manufacturers may experience great difficulty in enlarging their output; for it takes years, rather than months, to build enough mills, manufacture enough looms, and train enough workers to increase greatly the production of rayon cloth.

These manufacturers may, of course, bring into immediate use

any out-of-date and partially obsolete looms they happen to have on hand, recall for service aged and inefficient workers who have been released in normal times, and perhaps operate night shifts to keep equipment working at capacity. They will doubtless do all of these things, provided the high prices obtainable for the cloth are sufficient justification for the expansion of production at high average unit costs. Indeed, however high these costs may run, there is every likelihood that there will be no let-up in expansion so long as the average unit costs are less than the high selling price made possible by the sudden increase in demand. Owing to the inability of production to adjust itself immediately and completely to changes in demand, there may for a relatively long time be a margin of profit between price and costs of production. But as the long run wears on—that is, as the increase in mills, machinery, and labor force adds more and more substantially to the total output of rayon—this margin of profit will become smaller and smaller, and, assuming that the conditions of demand do not change in the meantime, will finally disappear.

But if the change in demand should be in the nature of decrease instead of increase, and if the decreased demand should appear likely to be permanent, retrenchment rather than expansion would be in order. Firms that were barely getting along when prices were good would be the first to disappear from the scene. Many concerns would doubtless continue to produce as long as the price obtainable was sufficiently high to cover the *variable* costs of production. But no concern can continue to produce indefinitely unless it receives for its product a price high enough to cover the *total costs* of production—that is, fixed as well as variable costs. The process of contraction, though often painful, is one that is easily understood. It consists of reducing in quantity the productive factors devoted to the industry—for example, machinery that wears out is not replaced, and workers who are no longer needed are laid off. In these and other ways, the productive capacity of the industry declines, output is lessened, and the unit price of the commodity rises. By and by, in the course of months or years as the case may be, the readjustment is complete, and price is again equal to average unit costs of production.

Readjustments in an Age of Large-Scale Production. Finally, we may note once more the fact that the period of readjustment may be a long one. New concerns do not pop into an industry the

instant there is a slight margin of profit between selling price and costs of production, and pop out again the moment it appears necessary to take a small loss. A century or more ago, these entrances and exits were made more rapidly than today, and the reason lies chiefly in the development of large-scale industry. In the early days of the factory system, going into business often meant the investment of only a few thousand dollars, whereas millions or hundreds of millions are now required for carrying on similar enterprises. Few business men could "break into" the steel industry today, even though they saw that large profits were being made there, since they could not secure the millions they would have to invest in fixed capital. And once in, they would not be able to withdraw quickly, even though they were taking losses, because their tremendous investment in equipment would have to be sacrificed if they gave up. In industries that require little capital, the readjustments in production that are necessary to meet changes in demand may still be made fairly quickly, but in the large-scale industries so common today it may take a very long time for the discrepancies between price and costs of production to be wiped out. But whether the process is quick or slow, we may be certain that as long as there are any discrepancies of this kind, just so long, in a competitive society, will there be economic forces at work remedying the situation—that is, pulling price in the direction of average costs of production.

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1. Why do costs of production play so important a part in price determination in the *long run*?
 2. What is the "optimum firm," and why does this firm tend to prevail in the long run?
 3. "Price cannot, over a long period, exceed costs of production, under conditions of competition." Why not?
 4. "Price cannot for long continue to be less than costs of production." Explain.
 5. If goods sell merely for costs of production, why do business men continue to carry on business?
 6. Under conditions of "constant costs," are the costs of various producers uniform, or is it the costs per unit of commodity (regardless of the quantity of output) that are constant?
 7. Would you expect much or little labor, and much or little capital, to be employed in a business of constant costs?
 8. Under conditions of constant costs, how does an increase in demand affect the price? A decrease in demand?
 9. What is an industry of increasing costs?

10. Why is wheat production a business of increasing costs?
11. Under conditions of increasing costs, how does an increase in demand affect price? A decrease in demand?
12. What is the significance, in the discussion of long-run price, of the statement that "every substantial change in the quantity of production is brought about through a reorganization of the industry"?
13. What connection is there between the limitation of land of high quality and increasing costs of production?
14. "The part which man plays in production shows a tendency to increasing returns." Why?
15. Under conditions of decreasing costs, how does an increase in demand affect price in the long run? A decrease in demand?
16. What are "joint costs"?
17. Give at least three examples of commodities that are jointly produced.
18. Under conditions of joint costs, what is the relationship of average costs of production to price?
19. On what basis are the *total costs* of commodities jointly produced divided into prices for each of the several commodities?
20. Under conditions of joint costs, how will a change in the demand for one of two articles jointly produced, without a corresponding change in the demand for the other, affect the individual prices of the two products?
21. What is meant by "special processing," and how do costs thus incurred affect prices?
22. Describe "joint supply," "joint demand," "composite supply," and "composite demand."

REFERENCES FOR FURTHER READING

See list of references at the end of Chapter 16.

20. Long-Run Monopoly Prices

In the last two chapters we discussed price determination under conditions of perfect competition. We must now give attention to long-run price conditions in which competition exists only partially, if at all.

We have emphasized the fact that perfect competition assumes the existence of *many* sellers and *many* buyers, so that the power of any one seller to influence the supply schedule, or of any one buyer to influence the demand schedule, will not be sufficiently great to have any effect upon price. Complete monopoly is just the opposite, for it assumes that there is but *one* seller or *one* buyer, or a combination among sellers or buyers—which means, in the case of supply, the ability to limit the quantity offered for sale, and thus to secure a price higher than the competitive price would be. On the side of demand, too, there may be monopoly,¹ with the result that the sellers must accept a price lower than competitive price.

But though monopoly *may* relate to either the sale or the purchase of a good, it is most often found in connection with the former. We shall limit our inquiry, therefore, to this aspect of monopoly, bearing in mind that complete monopoly is the exclusive control over the total quantity of any commodity or service in a given market, and is therefore the exact antithesis of perfect competition. Our present interest in monopoly has to do with the influence upon price of the “exclusive control over output” which is the outstanding characteristic of monopoly.

¹ Some writers prefer to call this condition “monopsony,” restricting the term “monopoly” to the supply side of price determination. In an earlier chapter, we noted the charge made by tobacco growers in the United States, to the effect that there are so few *buyers* of raw tobacco in this country that these few constitute a purchasing monopoly, and that the tobacco grower has often been obliged to sell his crop at a price dictated by this alleged monopoly, and sometimes at less than costs of production.

The Theory of Monopoly Price. Monopolists, like enterprisers producing under competitive conditions, are in business to achieve economic success. Since economic success is ordinarily measured in terms of money, it is customary in this country to regard as successful the business man who has been able to make a substantial profit. The notion that business men are anxious to secure large returns for themselves is indicated in the Theory of Monopoly Price, which says that the intelligent monopolist endeavors to market his product at a price which will bring him the *greatest possible total net return*.

Let us examine this italicized phrase a little further. The words "total" and "net" are particularly significant, and neither should be omitted. It would be incorrect to say that the monopolist is interested in securing the *greatest possible total return*, for this might conceivably mean selling at so low a price per unit that (in the long run) price would just cover costs of production, and there would be no monopoly gain. Nor would it be safe to say that the monopolist seeks to get the *greatest possible net return*, since this might be interpreted as meaning net return per unit, and not total net return; and an extremely high unit price might limit sales so severely that, despite a handsome net return per unit, there would be a very small total net return. What the intelligent monopolist aims to do is to charge the price that will yield a *net return per unit* which, when multiplied by the number of units sold, will bring him the greatest possible total net return.

LONG-RUN PRICE UNDER MONOPOLY

In illustrating the determination of monopoly price in the long run, we shall again employ three examples which we used in discussing long-run competitive prices under conditions of constant costs, increasing costs, and decreasing costs. We now assume, however, a state of complete monopoly in which one producer has exclusive control over the production of the good in question, and may decide for himself whether he will organize his business so as to produce large or small quantities.

Contrast Between Competitive and Monopoly Conditions in the Long Run. In Fig. 30, which illustrates price determination under conditions of constant costs, we have a supply (cost) curve and a demand curve which show that, under long-run *competitive* conditions, 50,000 neckties would be produced and sold at \$2.00 each.

We made clear, when we discussed this situation in an earlier chapter, that the price could not be less than average costs since enterprisers would not in the long run continue to produce at a loss; nor could it be greater than average costs because a margin of profit would attract new enterprisers and they—again in the long run—would so increase the quantity offered for sale that the price would be brought down to average unit costs of production. But under conditions of *complete monopoly* there is no such thing as competition among producers. Hence, the monopolist is in a position to

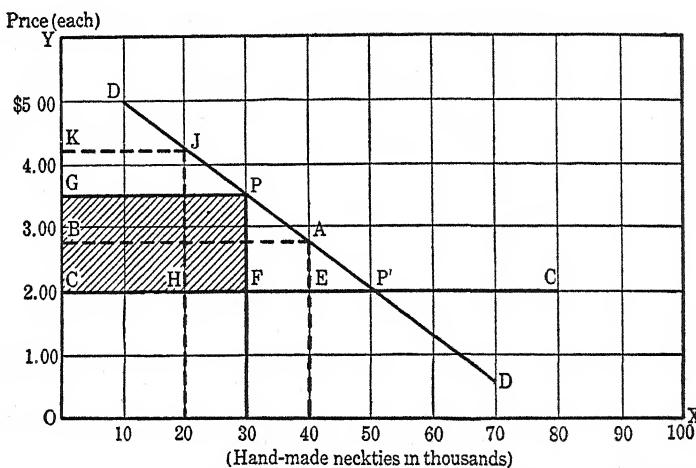


FIG. 30. LONG-RUN MONOPOLY PRICE UNDER CONDITIONS OF CONSTANT COSTS.

Monopoly price tends to be that price which will bring to the monopolist the greatest possible net return.

regulate his output so as to serve his own needs, which means, of course, so as to secure for himself the greatest possible total net return.

Our study of fixed stock—that is, price determination in the short run—showed us that, once a quantity of an economic good has been produced, the price it will bring depends largely upon conditions of demand. If, with demand conditions such as are indicated in Fig. 30, our monopolist should produce 70,000 neckties and offer the whole output for sale, the fact that he is a monopolist would not save him from selling at a loss, for the demand curve shows that 70,000 ties can be disposed of only if the price is as low as 60 cents, regardless

of the \$2.00 cost of production. In a predicament such as this, the monopolist would probably limit the amount of the commodity offered for sale, and might decide—since the costs entailed in production were gone beyond recall—to market whatever amount of his holdings would bring the greatest *gross return*.² This, according to the curve DD, would be 40,000 neckties, which would sell at \$2.80 each and provide a total revenue of \$112,000 to be applied to his costs of \$140,000. Or, since we have been discussing *short-run* price in the present paragraph, the monopolist might decide to sell some other quantity and take a chance on being able to market the remainder advantageously after the close of the short run.

It is extremely unlikely, of course, that an intelligent monopolist would so grossly misjudge the demand for his product; and we have suggested the possibility of so great a miscalculation merely to emphasize the fact that a monopolist, if he is to benefit by his monopoly power, must do so by adjusting production to demand. In making this adjustment he will try to see to it that there is a margin of profit between total receipts and total expenditures, and, in addition, he will endeavor to have this margin of profit represent the greatest total net return that can be extracted from the situation.

Long-Run Monopoly Price Under Conditions of Constant Costs. If our monopolistic necktie manufacturer should produce 50,000 ties, they would sell (as is shown in Fig. 30) at average unit costs of production, and there would be no monopoly profit. But if he restricts production, manufacturing 10,000, 20,000, 30,000, or 40,000 neckties, there will be in each of these instances a return over and above average costs. Consequently the monopolist, seeking not only a net return but the *greatest possible total net return*, will examine very carefully a demand schedule made up of his estimates of the prices at which various quantities of his product would sell, and on the outcome of his examination he will regulate his production, manufacturing many units or few on the basis of the Theory of Monopoly Price.

² A startling example of the control of the quantity of a commodity that is placed on the market was the destruction, by the National Coffee Department of Brazil, of 31,082,000 bags (about 4 billion pounds) of coffee, in the three-year period following June, 1931. The quantity burned and dumped into the sea, to hold up the price, was equal to more than fifteen months' consumption for the entire world and, at September, 1934, prices, was worth approximately a half-billion dollars. (*The New York Times*, September 6, 1934.)

The Calculation of Monopoly Profits. Let us suppose that he is able to estimate accurately in advance the conditions of demand represented by the curve DD in Fig. 30. Then, knowing that his costs of production per unit will remain unchanged regardless of the quantity produced, he is enabled to draw up a table something like Table 24, which indicates clearly that it will pay the monopolist to produce 30,000 neckties, which he will be able to sell at \$3.50 each. For this quantity of product yields a monopoly profit of \$45,000. If only 20,000 ties were produced, the advantage realized through the higher unit price would be more than offset by the reduction

TABLE 24. LONG-RUN MONOPOLY PROFITS UNDER CONDITIONS OF CONSTANT COSTS

Units Produced	Unit Prices Obtainable	Total Receipts	Total Costs	Monopoly Profit
10,000	\$5.00	\$ 50,000	\$ 20,000	\$30,000
20,000	4.20	84,000	40,000	44,000
30,000	3.50	105,000	60,000	45,000
40,000	2.80	112,000	80,000	32,000
50,000	2.00	100,000	100,000	...
60,000	1.30	78,000	120,000	-42,000
70,000	.60	42,000	140,000	-98,000

in number of units sold; and if 40,000 were manufactured and sold, the advantage of the larger quantity would be more than wiped out by the loss in unit price. The proper number to produce, therefore, is 30,000.

If Fig. 30 were drawn with absolute accuracy, the greatest possible total net return could be ascertained by measuring the areas ABCE, PGCF, and JKCH, and determining which of the three is the largest. These areas represent the monopoly profit to be realized by producing, respectively, 40,000, 30,000 and 20,000 neckties; for each of the areas is made up of total receipts, less total costs of production. This being the case, it is apparent that the greatest of the three areas must, in a diagram that is correctly drawn, indicate the largest monopoly profit. This area will be PGCF, and (as we learned in the preceding paragraph) it will pay the monopolist best to manufacture and sell 30,000 ties.

The monopolist, like the manufacturer who operates under competitive conditions, produces in anticipation of demand. He is not

able, therefore, to adjust his production perfectly to the demand schedule, because he cannot predict accurately in advance just what conditions of demand will prevail when he is ready to market his product. He proceeds, consequently, on the basis of the best information he can secure; and because his information is never complete, he is likely to produce at one time a little more, and again a little less, than the ideal amount. However, he is in a somewhat better position than the competitive producer to adjust production to the conditions of demand. For the latter is not only doubtful of the

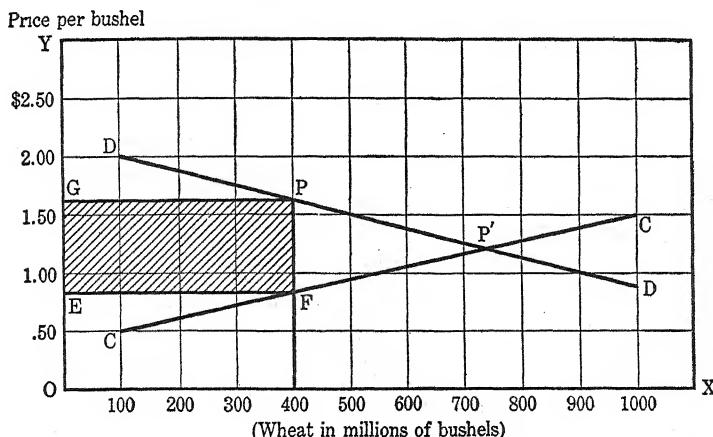


FIG. 31. LONG-RUN MONOPOLY PRICE UNDER CONDITIONS OF INCREASING COSTS.

Monopoly price tends to be that price which brings to the monopolist the greatest possible net return.

exact quantities that will sell at various prices, but he is also at a loss to know how much product will be thrown on the market by his competitors. And—demand being what it is—it is the *total* quantity which if large makes for low prices, and if small brings high returns per unit. The complete monopolist, though unable to forecast demand perfectly, is at least able to control production, so that production in anticipation of demand is somewhat less risky under monopoly than under competitive conditions.

Long-Run Monopoly Price Under Conditions of Increasing Costs. In Fig. 31 and Table 25, we have the data necessary for considering, as a problem in long-run monopoly price, the supply

and demand conditions which we used, in Chapter 19, in discussing long-run competitive price in industries of increasing costs.

The point P' in Fig. 31 indicates, as did the point P in Fig. 23, that the long-run *competitive* price under these conditions would be \$1.20 a bushel. But by reference to the last column of Table 25, we find that the long-run *monopoly* price would be \$1.63 a bushel, since this is the unit price at which the monopolist would realize the greatest possible total net return. The monopoly profit at this price would be \$316,000,000, an amount which is indicated in Fig. 31 by the shaded area, PGEF.

TABLE 25. LONG-RUN MONOPOLY PROFITS UNDER CONDITIONS OF INCREASING COSTS

Units Produced (millions)	Unit Prices Obtainable	Total Receipts (millions)	Unit Costs	Total Costs (millions)	Monopoly Profit (millions)
100	\$2.00	\$200	.50	\$ 50	\$150
200	1.87	374	.62	124	250
300	1.75	525	.73	219	306
400	1.63	652	.84	336	316
500	1.50	750	.95	475	275
600	1.37	822	1.05	630	192
700	1.25	875	1.15	805	70
800	1.13	904	1.25	1000	- 96
900	1.00	900	1.37	1233	-333
1000	.87	870	1.50	1500	-630

Long-Run Monopoly Price Under Conditions of Decreasing Costs. Reference to Fig. 32 and Table 26 enables us to compare long-run competitive and monopoly price under conditions of decreasing costs. The point P' in Fig. 32 shows that the long-run *competitive* price under the supply and demand conditions here pictured (which are the same as those given in Fig. 24) would be \$400. The *monopoly* price, however, would be \$700—the price indicated by the point P , and demonstrated in Table 26 to be the figure at which the monopolist would fare best, reaping at this price per unit a total monopoly profit of \$80,000,000. This monopoly profit is represented in Fig. 32 by the shaded area, PGEF.

Class Price. A demand curve, since it is a graphic representation of the Law of Demand, shows that, while some buyers will enter the market only if the price is low, there are others who would pay

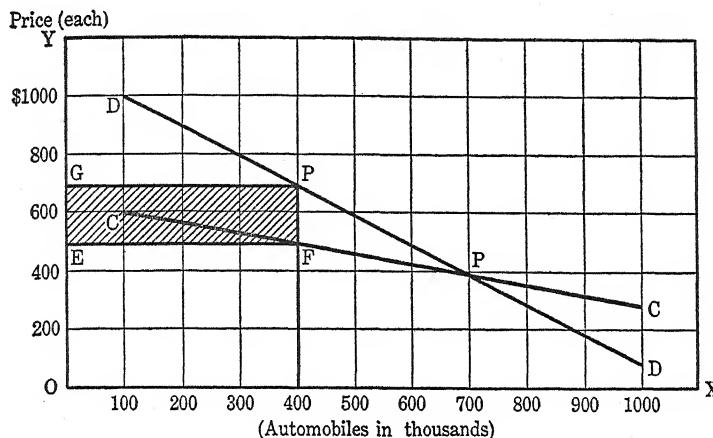


FIG. 32. LONG-RUN MONOPOLY PRICE UNDER CONDITIONS OF DECREASING COSTS.

Monopoly price tends to be that price which will bring to the monopolist the greatest possible total net return.

exceedingly high prices rather than go without the goods. Fig. 33 shows that the first 10,000 neckties of the lot could be sold at \$5.00 each, the second 10,000 at \$4.20 each, and so on down the line. To the seller of a commodity, it must seem a great pity that he cannot separate buyers into various price groups, and sell to each group at the maximum price its members would pay if the quantity offered were conveniently restricted. If, for example, it were possible to

TABLE 26. LONG-RUN MONOPOLY PROFITS UNDER CONDITIONS OF DECREASING COSTS

Units Produced (thousands)	Unit Prices Obtainable	Total Receipts (millions)	Unit Costs	Total Costs (millions)	Monopoly Profit (millions)
100	\$1000	\$100	\$600	\$ 60	\$ 40
200	900	180	575	115	65
300	800	240	535	160	79
400	700	280	500	200	80
500	590	295	460	230	65
600	500	300	430	258	42
700	400	280	400	280	...
800	300	240	360	288	- 48
900	175	157	320	288	-130
1000	100	100	300	300	-200

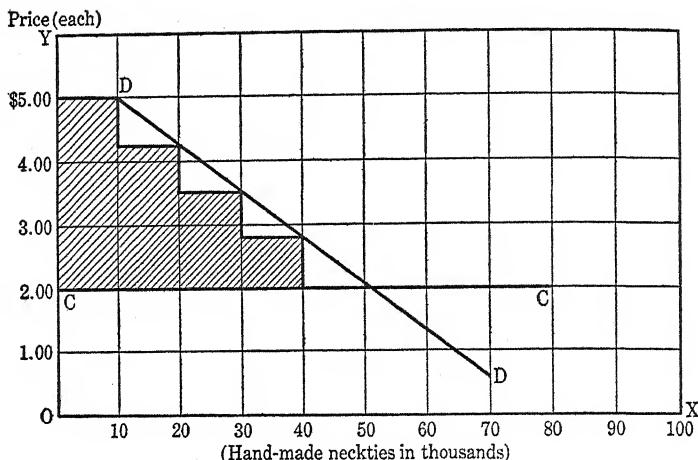


FIG. 33. CLASS PRICE.

Through interference with the operation of the Law of One Price, it is sometimes possible to secure a large monopoly profit.

sell the 40,000 neckties in batches of 10,000 each to the several price groups, the total profit would be considerably increased, as is shown by the figures in Table 27.

Obviously, from the point of view of the seller, it would be very desirable to market a product in this fashion and thus take advantage of the highest price each class could be induced to pay. It

TABLE 27. MONOPOLY PROFITS UNDER CONDITIONS OF CLASS PRICE

Units Sold	Unit Prices Obtainable	Total Receipts	Total Costs	Monopoly Profit
First 10,000	\$5.00	\$50,000	\$20,000	\$30,000
Second 10,000	4.20	42,000	20,000	22,000
Third 10,000	3.50	35,000	20,000	15,000
Fourth 10,000	2.80	28,000	20,000	8,000
Total Monopoly Profit				\$75,000

might be necessary, in order to evade the Law of One Price, to conceal from the groups that were paying the higher prices the fact that the same commodity was being sold to others at lower figures. But the average consumer is so poor a judge of the intrinsic

worth of most commodities that the difficulties of concealing the true state of affairs are not great.³

If the ties were offered on four different counters in the same store at the four different prices, it is probable that customers who ordinarily buy \$5.00 ties would see the batch offered at that price, and not the others. And even though they should note the similarity in appearance of neckties at different prices, they would be likely to attribute the difference in price to an imaginary difference in quality. It is entirely possible, then, that 40,000 ties could be sold in the manner that has been described, with the various classes of buyers paying different prices. Whenever a procedure of this kind can be followed, the possibilities of large profits are greatly increased. In our example above, a total of \$75,000 of monopoly profit has been extracted from the situation (see shaded portion of Fig. 33), whereas the best that could be done if all units were marketed at one price by a complete monopolist would be to secure \$45,000 of monopoly profit through the production and sale of 30,000 units.

The outstanding characteristic of class price is an interference with the operation of the Law of One Price. Some writers, in discussing class price, have referred to marketing that is done in batches at different times. A favorite illustration is the publication of a given book at different prices. A popular "series" of a well-known publisher offers to the public, at a dollar a copy, a long list of books which originally sold for as much as four or five dollars each. Having found that purchasers have bought as many copies of a certain book as will be taken at a high price, the publisher arranges (after an interval of some months or years) to have the book appear in slightly altered form at a much lower price, and thus gives it a new lease on life.

But this, strictly speaking, is not class price, for there is here no violation of the Law of One Price, which relates, it will be recalled, to a *given time*. It is best to restrict our concept of class price to those cases in which different classes of purchasers are induced to pay different prices for the *same good* at a *given time*. The fees charged by lawyers and physicians are often based on the principle of class price, being adjusted to the paying capacities of clients or patients. Public entertainers also frequently modify their charges to

³ The reader who is inclined to question this statement is referred to Stuart Chase and F. J. Schlink, *Your Money's Worth*, New York, The Macmillan Company, 1929, for specific instances of human fallibility in retail buying.

meet the needs of the occasion, asking wealthy patrons more than others for identical programs. In cases such as these, class price is possible because the buyers have no way of knowing how much other buyers are paying, or because, even though they know, there is nothing they can do about it in the absence of competition. In the case of some goods—such, for example, as medical and legal services—the general public seems to accept price discrimination as unobjectionable and, indeed, socially desirable.

There are doubtless numerous instances of the same goods parading under different names at different prices, making it possible for sellers to charge class price. A classic example is that of forty-cent, fifty-cent, and sixty-cent coffee being sold from the same bin. Another charming illustration is vouched for by the Federal Trade Commission: It appears that the American Feather Bed and Pillow Company marketed the same quality of bedding under different names, at various prices. "The facts were that the bedding was all manufactured from the same grade of feathers, covered by the same grade of ticking, with no difference in grade, make or quality. As orders were received, a label, suitable doubtless to the purchaser's idea of the proper price to pay, was attached."⁴ Class price involves, then, some interference with competition; and this interference seems most often to depend upon the ignorance of the buying public.

Long-Run Monopoly Price and Elasticity of Demand. We have seen that the monopolist must, in the long run, adjust his productive capacity and his output to the conditions of demand, if he is to benefit by the exercise of his monopoly power. However much or little he may be able to influence demand by advertising or other means, he will certainly, if he is wise, do his best to analyze the demand conditions for his product, and will aim to turn out, in the long run, whatever quantity of the good will yield the greatest possible total net return.

His final decision may be to limit output greatly and charge a high unit price, or, on the other hand, to produce a large quantity of the good and sell it at a moderate price. The question of elasticity of demand will doubtless enter into his calculations.

If the demand is highly elastic, many more units of the good can be sold at a low than at a high unit price. Under these circumstances, it may pay the monopolist to think and act in terms of quantity production, since a low price per unit may find more than adequate

⁴ *Ibid.*, pp. 83, 84.

compensation in the vastly larger sales that can be made if the price is held down. If the demand is elastic, but only slightly so, it is less certain that a low price will yield a larger total net return than a high price, since the gain in the number of units sold may not be sufficient to make up for the loss incurred through keeping the unit price low. If the good is one that has an inelastic demand, a high price will not greatly reduce the quantity that will find buyers, as compared with those who would purchase if the price were low. Hence, the monopolist will be encouraged to limit output (and hence the size of his plant and equipment) and charge all the traffic will bear.

Of course, an inelastic demand schedule eventually reaches a point beyond which it becomes elastic; but until that point has been reached, the monopolist is safe (so far as increasing his profits is concerned) in reducing capacity, decreasing output, and increasing the price per unit. This is true because, so long as demand remains inelastic, every such reduction in output and increase in unit price, at one and the same time reduces the monopolist's total costs, increases his total receipts, and thus adds to his total net return.

As we have said, it may pay the monopolist, if the demand for his product is elastic, to sell many units at a low unit price rather than fewer at a higher unit price. If he adopts this policy, he will find both total costs and total receipts increasing with each drop in the unit price. By examining these costs and receipts at every feasible step in production, and stopping at the point at which the difference between these two items is greatest, the monopolist will arrive at the quantity and price which will bring him the greatest possible total net return, as we have demonstrated in Tables 24, 25, and 26. It is not possible, in the case of elastic demand, to make a neat generalization such as is warranted in describing the effects of inelastic demand upon monopoly price in the long run.

LONG-RUN PRICE UNDER PARTIAL MONOPOLY

The assumption of complete monopoly, which underlies practically all we have said thus far in the present chapter, might almost be called an assumption contrary to fact—so difficult is it to find hard and fast examples of complete monopoly in the workaday world. There are in this country, to be sure, a few cases of governmentally owned complete monopolies, such as the coinage of money and the operation of the postal service; and there are a good many instances

attracted one or more additional producers into the field, and that the newcomers together manufacture 10,000 neckties at this same unit cost of \$2.00. The situation that now prevails is pictured in Fig. 34, which shows a total output of 40,000 ties which, according to the demand curve, will sell at \$2.80 apiece. This price brings every producer a profit over and above costs of production, as is shown in the shaded portions of the diagram. However, the chief producer, with an output of 30,000 ties, now receives only \$24,000 in monopoly profit, as contrasted with the \$45,000 he formerly got when producing exactly the same quantity.

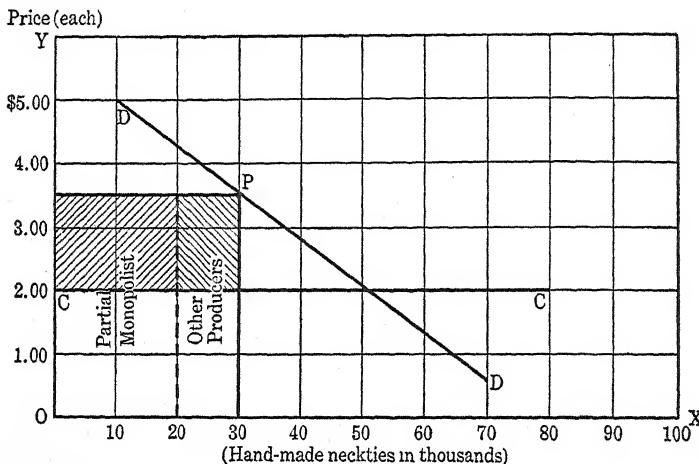


FIG. 35. LONG-RUN PRICE UNDER CONDITIONS OF PARTIAL MONOPOLY.

A comparison of Figs. 34, 35, and 36 shows the possibility of securing a monopoly profit, even in the absence of complete monopoly control.

Long-Run Calculations of the Partial Monopolist. We may be sure that the "partial monopolist," as we shall call the original producer, will resent this invasion of his field of production. But what he will do to remedy the situation is difficult to predict. He may decide that the invaders will not expand their productive capacity further, and that it will pay him best to reduce his own output by gradually reducing his productive equipment through non-replacement of worn-out capital. In this event, if he has guessed right, the total production of neckties may decrease, in the long run, to the quantity shown in Fig. 35. Here we find our partial monopolist turn-

ing out 20,000 ties as against a 10,000 total for all other producers. Both he and they have benefited by the reduction in output; for he now has a monopoly profit of \$30,000, and the other producers \$15,000, as compared with the \$24,000 and \$8000, respectively, which were theirs when the total output was 40,000 ties.

But the partial monopolist may have underestimated the aggressiveness of his competitors. He may discover, to his surprise and chagrin, that while he has been reducing his productive facilities his competitors have been adding to theirs, with the result that the total output, instead of falling to 30,000 units, holds firm at 40,000 units. Such a shift in productive capacity brings also a shift in the proportion of the total output that is produced by the partial monopo-

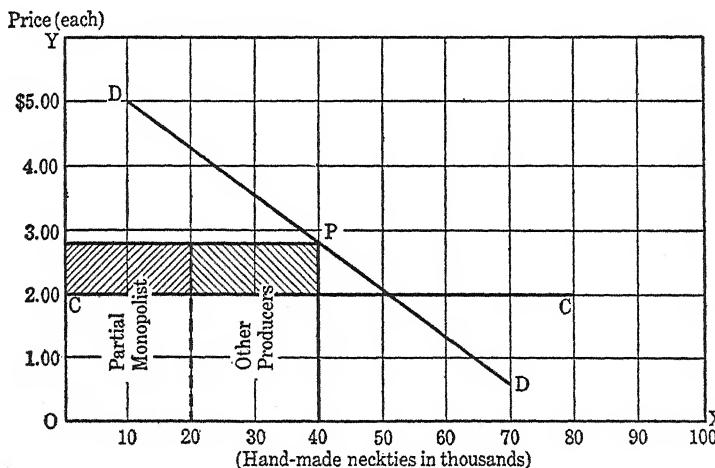


FIG. 36. LONG-RUN PRICE UNDER CONDITIONS OF PARTIAL MONOPOLY.

A comparison of Figs. 34, 35, and 36 shows the possibility of securing a monopoly profit, even in the absence of complete monopoly control.

list. The situation is shown graphically in Fig. 36, which indicates that the partial monopolist now produces only one-half of the total output, and that his monopoly profit has been reduced to \$16,000, while the total monopoly gain of the other producers has been raised to the same figure.

Forbearance Among Partial Monopolists. From what has just been said, it is apparent that each of the several partial monopolists may attempt to gain at the expense of the other; but the aggressor must look for similar treatment from those against whom he schemes.

So long as a margin of profit remains, it *may* pay one of these producers to increase his output and, by selling at a somewhat lower figure than the usual price, attempt to attract the patronage of his competitors' former customers. However, this course of action is fraught with danger, for it is almost certain to be repaid in kind and with interest! Long-continued warfare of this type would, of course, defeat its purpose by driving price down to cost of production and eliminating monopoly profit entirely. Indeed, it might conceivably be carried into the field of cutthroat competition, with a particularly strong partial monopolist selling temporarily at less than cost of production, with the thought of eliminating his few competitors and establishing a complete monopoly.

But partial monopolists, on the whole, show little inclination to fight it out with others engaged in like production. Rather, they usually settle down to a sort of armed truce, with the tacit understanding that aggression will be met with reprisal and that it is best for all concerned to let well enough alone. If the partial monopolists are of approximately equal size and strength, they tend to divide up the field among them and produce a total output that will yield a satisfactory profit for all. If there are one firm of giant size and a number of definitely smaller concerns (as in the steel industry in the United States), the smaller concerns are usually content to follow the lead of the large producer in the matter of price. Here, again, the price is pretty certain to be high enough to provide some monopoly gain for all producers.

DIFFICULTIES OF MAINTAINING MONOPOLY CONTROL

Conditional Nature of Most Monopolies. It is commonly said that a monopoly charges "what the traffic will bear," and there is doubtless a great deal of truth in this observation. But what the traffic will bear depends upon several extremely important considerations. There are practically no industries, except those protected by special governmental grants, that are completely immune to competition. Make the inducements sufficiently great—that is, let it become known that the monopoly is making very large surplus profits—and in most instances capital and managerial ability will enter the field in the hope of securing part of the surplus. This particular tendency is often called "potential competition" and is listed as one of the restrictions on monopoly.

But even if there should be no likelihood of formidable com-

petition, the use of substitutes is almost always a "way out," if the monopoly should be inclined to abuse its control over output and thus over price. Few commodities that are left unconditionally in the field of private enterprise are absolutely indispensable. If a coal monopoly charges extortionate prices, it is possible to turn to the use of oil or gas or, for some purposes, to burn wood. Electricity, gas, and even kerosene may be utilized for lighting purposes. Motor buses can be, and will be, employed if rail transportation is unduly high. The influence of substitutes becomes effective, of course, through a modification of the demand schedule. Indeed, whenever a demand schedule is presented—whether in the form of a table or curve—due allowance has already been made for available substitutes and any other factors that would necessarily affect the shape of the demand curve or the data on which it is based. If worst comes to worst and no satisfactory substitute for a monopoly product can be found, there is always—in the face of great monopoly abuse—the remedy of government ownership or control. Indeed, several of the commodities mentioned in the present paragraph are frequently produced under the supervision of commissions representing the interests of the public. The tendency in this direction is shown in the so-called public utility field, in which railway, streetcar, and bus transportation, telegraph and telephone communication, and the operation of waterworks, gas and electric plants, and other important "public services" are controlled, and sometimes owned, by a municipal, state, or national government.

Monopoly "by Authority." Governmental "interference" in industries such as we have mentioned is by no means always the result of monopoly abuse. In many instances it is simply a recognition of the fact that some enterprises must be operated as monopolies if waste is to be avoided. Little would be gained, and much might be lost, by permitting competition among producers of water, electricity, gas, and street railway service. Such competition, in most cases, would result in greater capital investment, larger overhead costs, and consequently higher rates than under regulated monopoly control. This country has witnessed some of the evils of competition among public utilities and has, for the most part, decided that regulated monopoly is better than unrestricted competition in this particular field of economic activity.

Patents and Copyrights. Another kind of monopoly by authority is that enjoyed by individuals or business concerns by virtue of

the possession of a patent or copyright. The United Shoe Machinery Company, for example, holds a number of important patents relating to shoe machinery, and is therefore able to exercise monopoly control over the leasing of equipment essential to shoe manufacture. It is the ownership of valuable patents that makes it possible to restrict the manufacture of Eastman Kodaks to the "proper" quantity, and thus to hold up the price. Illustrations of monopoly control through the possession of patent rights could be extended to include many thousands of examples. In many cases, of course, these monopolies are conditional, because of the existence of more or less satisfactory substitutes for patented goods. The same remark applies to goods sold under the protection of copyright.

A copyright is very similar to a patent in its influence upon price. Books, plays, musical compositions, trade-marks, slogans, and a host of other items may be copyrighted, and their use restricted to the holder of the special privilege unless he chooses to share it with others. When a song, a play, or a book captures the public fancy as did, respectively, *Old Man River*, *Life with Father*, and *Peace of Mind*, the monopoly power that goes with a copyright may be converted into hundreds of thousands, and sometimes millions, of dollars. For the exclusive control of the goods in question makes it possible, since competition cannot interfere, to secure for the one in control a large measure of monopoly profit. If, for example, the authors of *Life with Father* (in its dramatized version) had not taken out a copyright, there can be little doubt that, once the play caught on, it would have been presented by dozens of theatrical producers. The result would almost certainly have been the disappearance of monopoly profit, because of price-cutting. But since the authors owned the copyright to the play, they were able to extract exceedingly large profits from the record-breaking run of this production.

"Good Will" and Monopoly Profit. In many instances, a trade name will do quite as much as superior quality to sell an article to the consuming public and to put it outside the field of competitive price. The words "Ivory," "Old Gold," "Pepsodent," and "Uneeda" have a sales value which may be, but is not necessarily, dependent upon the excellence of the commodities to which they relate. If, for example, it were possible to manufacture a soap that was 99½ per cent pure, it is more than doubtful that the new product would compete seriously with Ivory Soap which, unless the manufacturers have understated its excellence, is only 99 44/100 per cent pure! The

modern answer to Juliet's query, "What's in a name?" can be found in the fortunes that have been built up through the use of copyrighted names such as those we have mentioned. Once a trade name has been impressed upon the public consciousness—usually by dint of high-pressure advertising—the owner of the copyright to that name can ordinarily exact a monopoly tribute from consumers, if only he continues (through magazine, radio, and other forms of advertising) to sing the praises of his wares.

We must not overlook the fact that the prestige of a particular commodity or business house can usually be gained only through the demonstrated ability of the commodity or concern to satisfy the public. If the quality of an article is satisfactory and is steadfastly maintained, and a firm's dealings with the public are consistently fair, it is reasonable to suppose that buyers will be unlikely to withdraw their patronage. Once the reputation of a concern is established, its satisfied customers return to it almost automatically whenever additional goods are needed. Confidence in a product and a friendly feeling toward a business house are the stuff of which "good will" is made.

But confidence and friendship, sad to relate, are not always completely justified. In the world of business, as in other lines of human affairs, they may be misplaced. Lying advertisements have been known to win the patronage of the public and bring huge profits to unscrupulous enterprisers. Many examples, past and present, could be cited in proof of this statement. It is sufficient to mention the fact that many, and perhaps most, patent medicines are quite incapable of relieving the ills which they profess to cure; that several popular toilet articles are sold largely on the basis of groundless fears aroused by sensational advertising; and that a certain cigar manufacturer used to suggest luridly, but untruthfully, that cigars made by others were produced under insanitary conditions—until he was restrained by the Federal Trade Commission from following this "unfair practice." Fortunately, however, good will is ordinarily short-lived unless customers are given at least reasonably good treatment. In any event, good will while it lasts, and whether justified or not, is a source of monopoly gains. To the extent to which buyers patronize a business man who has won their confidence, but whose prices are higher than the prices of others, this business man is in a monopoly position and may reap a monopoly profit.

1. Define "complete monopoly."
2. What is the relationship between competition and monopoly?
3. State the Theory of Monopoly Price.
4. State specifically the method by which the monopolist is able to regulate price in the long run.
5. Is long-run monopoly price likely to be higher or lower than competitive price? Why?
6. The monopolist is "in a somewhat better position than the competitive producer to adjust production to demand." Why?
7. What data must the monopolist have in order to decide upon the most advantageous quantity to produce?
8. What is "class price"?
9. Explain the importance of the *time element* in class price.
10. Give several examples of class price.
11. What is the relationship between class price and the Law of One Price?
12. What is the meaning of "partial monopoly"?
13. It is suggested in the text that partial monopolists usually find it desirable to "practice forbearance." Explain.
14. "There are practically no industries, except those protected by special governmental grants, that are completely immune to competition." Explain.
15. What is "potential competition"?
16. How does potential competition serve in some measure to protect the buying public from abuse by monopolists?
17. What argument is usually advanced in justification of monopoly "by authority"?
18. How does the issuance of patents and copyrights lead to monopoly?
19. Do you feel that patents and copyrights can be defended successfully as being economically justifiable? Explain.
20. What is "good will," how does it come into existence, and of what use is it?

REFERENCES FOR FURTHER READING

See list of references at the end of Chapter 16.

21. Short-Run and Long-Run Prices Under Imperfect Competition

The greater part of our discussion of price determination has assumed the existence of either perfect competition or complete monopoly. However, we departed from these extreme assumptions to consider partial monopoly, which, though distinctly related to complete monopoly, lacks the exclusiveness that characterizes that rare condition. We now examine the situation known as *imperfect competition*, which, as the name suggests, does not fully measure up to our definition of perfect competition. For imperfect competition refers to a condition in which, though there may be many sellers offering a given product in a given market at a given time, some of them find it possible, in one way or another, to evade the thorough-going competition which sellers in a free market are, by definition, required to face.

THE NATURE OF IMPERFECT COMPETITION

Perfect competition implies that no seller is in a preferred position—that buyers would just as readily buy from any one seller as from any other, and are so situated as to be able to shift easily from seller to seller if even the slightest reason for making a change should develop. This means, of course, that the general conditions of the market are uniform, and that, specifically, the product itself is uniform throughout the market. For, as we said in our first chapter on price determination, *price applies to a given grade or quality of a given good, and not to that good in general.*

DIFFERENTIATION IN PRODUCT

Strictly speaking, if one seller's product differs even a little from the product of other sellers, it should be regarded as a *different product*, with supply and demand schedules all its own. But in the

actual market place there are literally thousands of commodities and services, each of which, while differing somewhat from other commodities or services of the same general type, is yet so much like some of these as to constitute a quite satisfactory substitute for them. The result is competition—though not perfect competition—between two or more goods that are not strictly uniform.

Economic Advantages of Differentiation. Whenever there are real or imaginary differences of the kind mentioned above, the seller who holds an advantage is likely to try to make the most of it. For if he can convince buyers that his product is better than that of other sellers (regardless of whether, in reality, it is or is not better), he may be able, by reason of this differentiation in product, either (1) to sell at a somewhat higher price than is asked by the others, or (2) to sell at the price charged by others a far larger quantity than he could dispose of, were the buying public not persuaded of the superiority of his product.

Differentiation: The Distinguishing Mark of Imperfect Competition. The earmarks of imperfect competition are (1) differentiation, and (2) the existence of many sellers. Since there are also many sellers under perfect competition, we may seize upon differentiation as the outstanding characteristic of imperfect competition.¹ But it is a differentiation that operates only within narrow limits, for if the differences between the products offered by sellers are so great that each product is not a close substitute for the others, the products should be treated individually and not as "the same product."

Genuine Differences in Competing Products. There are relatively few markets in which commodities are so completely standardized as to warrant the statement that they are entirely uniform. Of course, it is possible, in the various commodity exchanges, to buy wheat, cotton, sugar, coffee, and certain other goods on the basis of standard classifications, with every assurance that the article quoted by one seller is identical with that quoted by another. It is also feasible for big concerns to order large quantities of machinery, raw ma-

¹ We are not overlooking the fact that complete monopoly constitutes differentiation in its most extreme form, and that partial monopoly, though we have considered it as relating to a uniform product, may consist of a few sellers offering differentiated products for sale. However, it seems fair to say that the distinguishing feature of complete and partial monopoly is *a limitation in the number of sellers*, whereas in imperfect competition it is *differentiation in the product itself or the special conditions surrounding its sale*.

terials, and other essentials, according to written specifications, and thus avoid differentiation of product by the sellers from whom they ask bids.

But the average consumer, buying at retail in small quantities, is frequently required to choose between many varieties of a given type of good. A housewife, let us say, finds that the grocers in her community handle bread baked by a half-dozen different concerns. Four of these brands are "ordinary" bread and sell at 10 cents, the other two at 11 cents, for loaves of equal weight. But of the 11-cent brands, one contains a slight amount of butter and the other a small quantity of milk. Here, then, is a case in which, though there is a high degree of competition, since all six brands of bread are tasty and wholesome, there is also differentiation, for both bakers of 11-cent loaves may claim special merit for their products as compared with the cheaper bread. Moreover, each of these two bakers might in all sincerity insist that his bread is superior to that of the other, because of its content of butter or milk, as the case happens to be.

The Intermingling of Competition and Monopoly. It is evident that the market just described has in it elements of both competition and monopoly. No one will deny that these six brands of bread have points of similarity, and might fairly easily be substituted for one another. On the other hand, it is equally clear that the two 11-cent brands differ one from the other, and that they differ still more widely from the other four. In so far as these "different" brands are similar (as they unquestionably are, in their ability to meet the demand for bread), the market leans toward competition; to the extent to which they differ (as they do in certain minor respects), the situation smacks of monopoly. But since it seems to be more largely competitive than monopolistic, we do not hesitate to call it a condition of imperfect competition.

Though we have assumed that only six brands of bread are offered for sale in this hypothetical market, it is reasonable to suppose that there are a number—perhaps a score or more—of grocers. Not only the six brands, but also the twenty grocers, compete with one another, and the result is a very considerable amount of competition, but admittedly not perfect competition, in the sale of bread. The availability of the "milk" bread may keep the price of "butter" bread from going above 11 cents, and the presence of the "butter" bread may in turn hold down the price of "milk" bread to that figure. In like manner, the possibility of substituting the lower-priced brands

may exercise a restraining influence upon the price of both of these better brands. Finally, the recognized superiority of these 11-cent loaves may deter sellers from asking more than 10 cents for the other brands, since an advance to 11 cents for the "ordinary" bread would almost certainly lead buyers to shift to the "milk" or "butter" brands.

The net effect of this intermingling of competition and monopoly is to permit some variation in the price of bread, because of the genuine differences in the several brands, but to confine this price variation within very close limits because the differences in product, while real, are after all relatively slight. Under conditions of perfect competition, with a completely uniform product, we should expect a single price to prevail, in conformity with the Law of One Price. But under imperfect competition, with a differentiation in product, price must be expected to vary somewhat. In our illustration, we have suggested that the price of bread might range from 10 to 11 cents a loaf.

Pseudo-Differences in Competing Products. Differentiation in product may be built upon pseudo-differences quite as well as on differences that are genuine. The prime essential of effective differentiation is that the buying public shall *believe* that differences exist. So long as buyers are convinced that one brand is better than another, it matters not at all whether the superiority is real or imaginary. Since this is true, it is small wonder that many a seller finds it more profitable to make fictitious claims for his product than actually to endow it with superior qualities.

Let us imagine a market in which cigarettes of identical quality, but different brands, are offered for sale. Anxious to gain an advantage in the matter of price or hoping to attract an exceedingly large number of buyers, one of these producers may undertake to differentiate between his cigarettes and those of other manufacturers through the use of a clever slogan, paid testimonials of socially prominent persons, or some such device as the once flaunted "cigarette blind-fold test."

If these measures are successful in persuading the public that this particular brand is better than other cigarettes which are actually equally good, this purely *imaginary* difference is likely to result in price variations within a limited range, just as in the case of the *genuine* differences in quality which led to small variations in the price of bread. Of course, it is possible that this one producer's attempt to differentiate between his brand and other brands would

cause the other manufacturers to adopt defensive or retaliatory measures, with the net result that none would long hold an appreciable advantage.

The Prevalence of Differentiation in Product. Differentiation in product that is based upon fact or fancy is discernible on every hand. Cold cream, gasoline, corn flakes, soap, milk, cigars, hosiery, and a host of other commodities are often sold under conditions of imperfect competition. The situation prevails largely because some sellers make special claims for particular brands, and some buyers, unable to check adequately on the truth or falsity of these claims, are willing to pay slightly more for a highly extolled brand of a given good than is charged for other, less highly advertised brands, which may be quite as good—and may, indeed, be even better, for price is a very uncertain index of quality. One need but compare the wild claims made for certain brands of tooth paste with the medical profession's dictum that "the dentifrice has in itself no chemical or magical power to clean,"² to see the lengths to which baseless differentiation of product in a given field may go.

DIFFERENTIATION IN CONDITIONS OF SALE

There may be differentiation in the conditions surrounding the sale of a product quite as well as in the product itself; and, of course, both kinds of differentiation may occur at the same time. However, to simplify our discussion of differentiation in the conditions of sale we shall assume, in the present section, that there are no differences, real or imaginary, in the product. This leaves us free to center our attention upon any special conditions connected with the merchandising of a good that may place one or more sellers in a preferred position, and thus make the market situation one of imperfect competition—for it must be remembered that competition is not perfect unless buyers are as willing to buy from any one seller as from any other, and are able to shift readily from seller to seller.

In most cases, the special marketing advantages that we shall note relate to all or at least many of the commodities the "preferred" seller is offering, and not merely to an isolated item. If, for example, people are willing to pay a great department store a little more than is charged elsewhere for a given good, *for reasons other than a differentiation in product*, it seems likely that they would also pay the favored store somewhat more than the customary market price for

² *Hygeia*, October, 1926.

any of many kinds of goods. We shall examine several differences in the conditions of sale which might give rise to imperfect competition.

Differences in Locations. A fairly obvious marketing advantage is the possession of a specially good location, which means a location that shields the seller, to some extent, from competition. The suburban druggist often enjoys an advantage of this kind. If he has the only drug business in town, he is able to charge more than a strictly competitive price, just so long as his "mark up" is not so great as to invite competition from the outside or to induce his customers to shift to another druggist in an adjacent town, or commuters to patronize a cut-rate chain drugstore in the nearby city. Within reasonable limits, then, the local druggist, grocer, plumber, or hairdresser may charge prices that have in them some element of monopoly attributable to his sheltered business location.

In like manner, every seller whose location is so convenient that the buying public is anxious to patronize him may use this advantage either to raise prices above those charged by less admirably located merchants, or (by keeping prices down to the customary figures) to attract an unusual volume of business. In a great city, the heart of the theatrical section, or the block nearest the suburban railway station, might, for purposes of differentiation, be an especially desirable location for the sale of specific commodities. Even if the slogan, "I'd walk a mile for a Camel," is to be taken literally, it seems more than likely that at least some of the fastidious smokers of "Camels" would pay an extra penny, or even a nickel, to be spared making the trip. Whenever differentiation in location leads to an extra payment for cigarettes, or for any commodity or service, we have an instance of imperfect competition.

Differences in Sales Policies. When, a good many years ago, a few progressive American merchants adopted the novel policy of charging established prices for goods (instead of "higgling" about price with every customer) and guaranteeing "satisfaction or money back," they placed themselves in a preferred position in the field of marketing. The acceptance of mail and telephone orders, the provision of free, prompt delivery, and the extension of liberal credit to retail buyers were further steps in differentiation as between sellers.

The principle that "the customer is always right" has gone far, and is now widespread in this country. However, it is more earnestly observed by some sellers than by others, and herein lies a differentiation worth noting, and one that is not overlooked by the buying public.

For customers who value their time and seek to avoid fruitless controversy, it is distinctly advantageous to deal with merchants who insist that the sale is not concluded until the buyer is completely satisfied. Good will, which often brings a fancy price when a business changes hands, is very largely a matter of commanding a following which has been built upon an enlightened sales policy.

Differentiation Through Special "Services." Another means of differentiation is the provision of special "services," which make one place of business more attractive than others of the same general type. A department store that offers its customers comfortable rest-rooms of ample size, writing rooms with free stationery, restaurants and lunchrooms with meals at markedly low prices, free organ concerts, free lectures on diet, poetry, and interior decorating, free instruction in cooking and dressmaking, spacious aisles, prompt elevator service, and unusually well-informed and courteous salesmanship, is likely to be able, because of these exceptional "services," to ask and receive prices somewhat higher than those charged in lesser establishments. Indeed, in the case of a great department store, the mere fact that one may do a whole day's shopping under a single roof is in itself a tremendous drawing card for many buyers.

What we have just said is, after all, little more than a variation on the old theme that when one buys a commodity he also buys "service." Sometimes—as, for example, when buying a lunch or a dinner—the service is of paramount importance. But in the case of most purchases, the extension of some unusual courtesy or privilege, perhaps small and seemingly insignificant in itself, may make a steady customer of a casual buyer. In general, people like to buy in stores that are conveniently located, from concerns they feel they can trust, in physical surroundings that are pleasant, and with the help of salespeople who reject the famous Vanderbilt pronouncement, "The public be damned."³

Differentiation Through Advertising. We have already noted that differentiation may result from advertising that plays up imaginary differences in equally good brands of a given commodity, and succeeds in convincing the public that one brand is superior to the rest. But advertising, without going so far as to state or even imply that a particular brand is better, may yet bring about differentiation merely by keeping the brand in question ever in the public eye.

³ John Bartlett, *Familiar Quotations*, Boston, Little, Brown & Company, 1938, p. 946.

For many years, a toilet soap of English make enjoyed an unusual popularity, which was gained largely through bombarding the public with the line, "Use Pears' Soap!" Here was no attempt to argue the special merits of the product, but a simple injunction that attacked the possible purchaser from every magazine, newspaper, and billboard. That Pears' Soap long occupied a sheltered position, freed from the operation of perfect competition, was perfectly apparent. That the differentiation was related to advertising is evident from the fact that the sale of this soap began to decline alarmingly just as soon as the volume of advertising was reduced, and picked up again when extensive advertising was resumed.

It is not too much to say that the *purpose* of most advertising is to differentiate between the advertised article and other very similar products, and that in any event the *effect* of much current advertising is to interfere with the perfect functioning of competition, and thus to bring into existence a condition of imperfect competition.

SHORT-RUN PRICE UNDER IMPERFECT COMPETITION

Thus far, we have looked into the nature of differentiation, and emphasized the fact that it is the stuff that imperfect competition is made of. We have noted incidentally that imperfect competition gives rise to variations in price which would not occur in a perfectly competitive market. We shall now inquire a little further into these variations and their relation to phases of price analysis that we examined in earlier chapters.

In dealing with short-run and long-run price under conditions of imperfect competition, we must alter not only the definitions of demand and supply used in our study of competitive price determination, but also the graphic representations of demand and supply. In Fig. 37, which pictures short-run price determination under imperfect competition, we see that the familiar demand and supply *curves* have given place to demand and supply *belts*. The width of these belts indicates the limits within which price varies, because of the imperfections of competition. For example, the demand belt, DD, shows that 200 dozen eggs would be purchased at prices ranging from 43 to 45 cents a dozen, and 300 dozen within a price range of 38 to 40 cents; while the supply belt, SS, shows that 300 dozen would be offered for sale at from 18 to 20 cents, and 700 dozen if the prices obtainable were 38 to 40 cents.

Hence, we may define demand, under conditions of imperfect

competition, as a series of quantities of a differentiated economic good which, in a given market at a given time, would be purchased at figures falling within a corresponding series of price ranges. In the demand schedule given in Fig. 37, 200 dozen eggs constitute one quantity in this series, and this quantity is coupled up with a price range of 43 to 45 cents. In like manner, supply, under imperfect competition, is a series of quantities of a differentiated economic good which, in a given market at a given time, would be offered for sale at figures falling within a corresponding series of price ranges. The supply schedule in Fig. 37 shows 700 dozen as one in a series

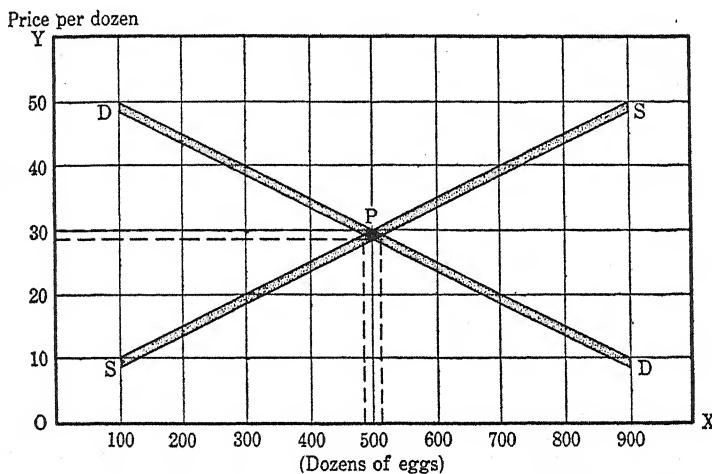


FIG. 37. SHORT-RUN PRICE UNDER IMPERFECT COMPETITION.

of such quantities, and 38 to 40 cents as the corresponding price range.

In our diagram, the letter P does not represent a *point*, indicating a single quantity at a single price, but rather an *area* (the solid diamond-shaped area at the intersection of the demand and supply belts), indicating a *number* of quantities and a *number* of prices. This means that we cannot speak with definiteness about either the quantity that will be sold or the price that will be charged. We know, by examining the vertical broken lines which are drawn perpendicularly to the base line, that the quantity sold cannot be less than 480 or more than 520 dozen; and the horizontal broken lines tell us that the price range extends from 28 to 30 cents. But whether the

total quantity sold comes closer to our minimum or maximum figure we cannot hope to know; nor can we discover what proportion of the total is sold at each of the several figures within the known price range. Here, as always in dealing with imperfect competition, we must be content with approximate information.

Since we are discussing short-run price, it should be clear that cost of production does not enter into the situation, any more than it enters into the determination of short-run price under perfect competition. The supply belt, then, simply shows the price ranges within which various quantities of the good would be made available. Within each of these many price ranges, we should naturally expect the sellers who occupy advantageous positions, by reason of differentiation, to hold out for the higher figures. Of the dealers willing to supply a part of the total of 500 dozen eggs which, as our figure shows, would be offered for sale at from 28 to 30 cents, there might be one only whose success in differentiation enabled him to charge 30 cents, a few whose less favorable position allowed them to ask 29 cents, and a fairly large number who could not hope to sell at a higher price than 28 cents.

It should always be borne in mind that the possibility of close substitution tends to keep the price variations of imperfect competition within narrow limits. Even the most favored seller in this egg market might hesitate to ask more than 30 cents, fearing that to do so would cause some of his customers to turn to the slightly less desired product offered by others at 29 or 28 cents. A variation in the price charged by different dealers for a substantially uniform product is a sign of imperfect competition, but a variation that is slight suggests that there is in the situation a good deal of potential competition, and that the preferred sellers dare not tempt the fates too far.

LONG-RUN PRICE UNDER IMPERFECT COMPETITION

Upon long-run as well as short-run price determination, imperfect competition casts its shadow of indefiniteness. For in so far as differentiation of a product or of conditions surrounding its sale continue over long periods of time, to this extent will long-run price tend to fall within a limited price range rather than to equal an exact figure which measures the average unit costs of production. Price ranges of these kinds, for industries of constant, increasing, and decreasing

costs, are indicated by the solid areas marked P in Figs. 38, 39, and 40, respectively.

Time has ever been a great leveler, and economists, in using the concept of the long run, have depended upon the passage of years to wipe out any "abnormal" conditions which may temporarily have permitted price to be higher than costs of production. However, they have looked to perfect competition to bring about the necessary readjustments; and if imperfect competition, through the agency of differentiation, is a continuing phenomenon, it would seem that the

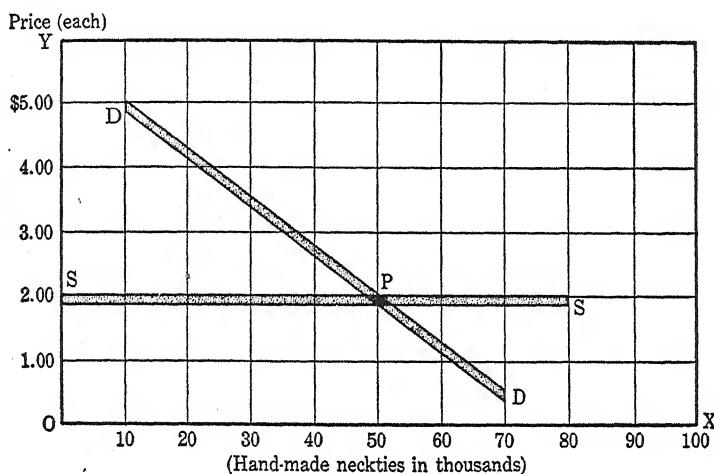


FIG. 38. LONG-RUN PRICE, UNDER IMPERFECT COMPETITION, IN INDUSTRIES OF CONSTANT COSTS.

limited price range, rather than *one price only*, might be applicable to a good many price situations. Some kinds of differentiation are, indeed, short-lived, but others (such, for example, as differentiation based on good will or a well-advertised brand) may be potent for some decades or even generations.

In industries in which differentiation prevails even in the long run, the supply schedule ceases to be strictly an average unit cost curve and becomes instead a supply belt. This is not, however, a supply schedule such as we met in our treatment of short-run price under imperfect competition, for that schedule bore no necessary relationship to costs of production. The long-run supply belt is by no means so completely divorced from costs, for the lower limit of this belt

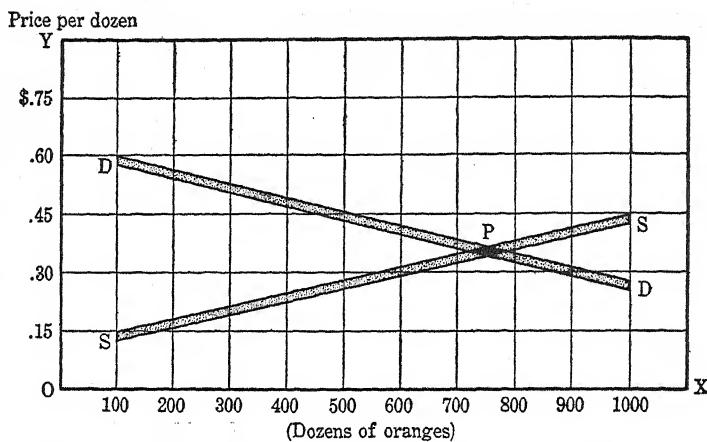


FIG. 39. LONG-RUN PRICE, UNDER IMPERFECT COMPETITION, IN INDUSTRIES OF INCREASING COSTS.

is a *line*, on which (as on the long-run supply curve under perfect competition) are figures below which, for corresponding quantities, long-run unit price cannot go, since these figures represent (for the

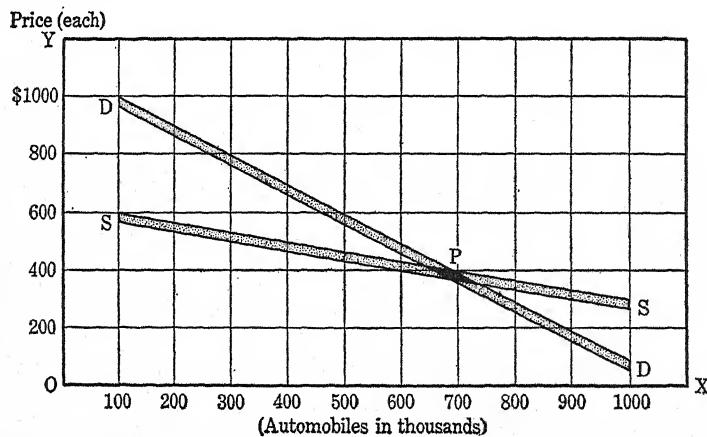


FIG. 40. LONG-RUN PRICE, UNDER IMPERFECT COMPETITION, IN INDUSTRIES OF DECREASING COSTS.

various quantities) the average unit costs of production. Above this line, however, is an *area* in which are found, within a limited range, the slightly higher prices which some especially fortunate concerns, by reason of their success in differentiation, are able to charge.

What we have said about partial monopoly and imperfect competition is an amplification of our repeated warning that perfect competition and complete monopoly are extremely rare. It is true that in Chapters 16 to 19, and in most of Chapter 20, we assumed the existence of perfect competition or complete monopoly. These assumptions were essential to the development of our analysis, just as certain hypotheses are necessary in the study of the physical sciences. But we have been free always to admit that competition and monopoly in unmodified form are probably non-existent. "Though monopoly and free competition are ideally wide apart," says Professor Marshall, "yet in practice they shade into one another by imperceptible degrees; . . . there is an element of monopoly in nearly all competitive business; and . . . nearly all the monopolies, that are of any practical importance in the present age, hold much of their power by an uncertain tenure; so that they would lose it ere long, if they ignored the possibilities of competition, direct or indirect."⁴

-
1. The term "strictly competitive price" assumes that the good under consideration is uniform throughout the market. Why is this assumption essential?
 2. In what respects might a merchant gain through a "differentiation" in the product that he sells?
 3. "The outstanding characteristic of imperfect competition is differentiation." Explain.
 4. Give an example of *genuine* differences in *competing* products.
 5. Differentiation in product may be the result of *pseudo-differences*. Explain, with an illustration.
 6. In every instance of imperfect competition, there is an element of monopoly. Why is this necessarily the case?
 7. Under imperfect competition, prices must be expected to vary somewhat. What is to keep them from varying *widely*?
 8. What connection, if any, may there be between (1) differentiation in product and (2) lack of knowledge of market conditions on the part of the buyers?
 9. Explain how a progressive sales policy might lead to differentiation, and therefore to imperfect competition.
 10. Give an example of differentiation brought about by advertising.
 11. Contrast the *price range* under imperfect competition, with *one price only* under perfect competition.

⁴ Alfred Marshall, *Industry and Trade*, New York, The Macmillan Company, 1923, p. 397.

12. Why should the quantity sold, as well as price, be somewhat indefinite under imperfect competition?
13. Would you expect differentiation to be wiped out in the long run? Why, or why not?
14. What is the gist of Professor Marshall's observation as to the nature of competition and monopoly?

REFERENCES FOR FURTHER READING

See list of references at the end of Chapter 16.

22. Prices in the Period of Current Production

*Our next task is to inquire into the productive activities that take place in what, for want of a better name, we shall call the "period of current production." The short run, as we have seen, relates to a *fait accompli*, in so far as production is concerned, since it deals with goods already in existence. The long run, on the other hand, is long enough to enable business men to increase their productive capacity by enlarging old plants or building new ones, or to decrease their capacity by failing to replace old productive facilities as they wear out. But the period of current production has to do with goods which may or may not be produced, depending upon the desirability or undesirability of carrying on production as judged by business men already equipped to turn out the goods in question. The period of current production may be defined, then, as a *period of time too short to permit a change to take place in the quantity of plant and equipment available for making a given economic good, but sufficiently long to enable enterprisers to turn out as much of the good as they may think desirable, within the limits of the existing productive capacity.**

COMPETITIVE PRICES IN THE PERIOD OF CURRENT PRODUCTION

Causes of Productive Activity. A business man will ordinarily produce goods only if he sees, or thinks he sees, a financial advantage in so doing. This advantage may consist of either making profit or avoiding loss. That is to say, the producer will seek to *maximize his profits* if profits can be had, or to *minimize his losses* if losses must be taken. During the post-1929 depression some business enterprisers continued to produce goods which sold for substantially less than *total costs* of production, though for more than *variable costs*, while others closed down completely because the prices obtainable

for their products were insufficient to cover even variable costs. But there were times during World War II when many producers found it profitable to use their equipment very intensively, and thus turned out, even before they were able to increase the size of their plants, far larger quantities than they had ordinarily produced.

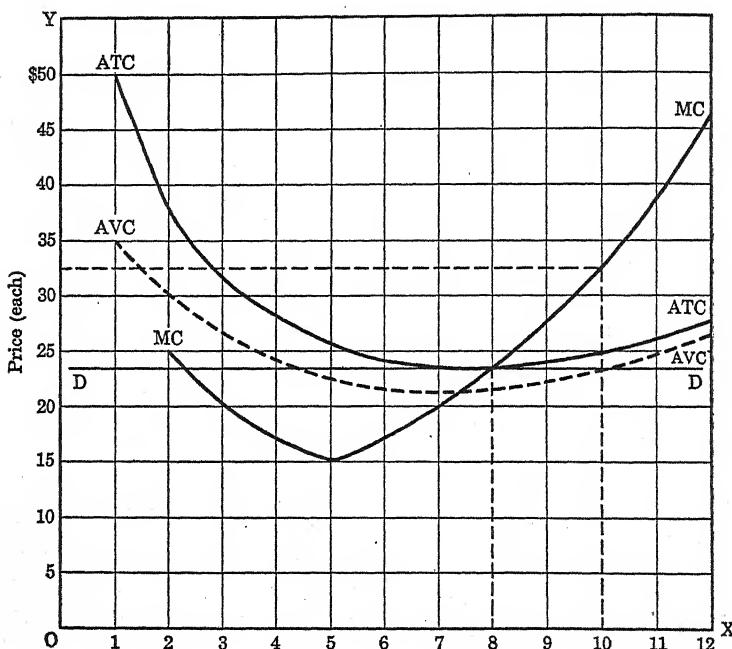


FIG. 41. COST CURVES OF AN INDIVIDUAL MANUFACTURER OF BRIEFCASES, AND DEMAND CURVE FOR HIS PRODUCT, UNDER COMPETITIVE CONDITIONS.

Costs of an Individual Producer. We may observe the attempt to maximize profits or minimize losses by considering the case of an individual firm, using the information presented in Table 28 and Fig. 41. In the table are given several kinds of costs which would be incurred by a hypothetical manufacturer of briefcases; and the figure shows in graphic form as many of the essential data as could conveniently be included. In Fig. 41, average total costs and marginal costs, in which we are especially interested in the present connection, are indicated by the ATC and MC curves, respectively. They show, as do the corresponding figures in Table 28, that both kinds of costs

decline for a time with each increase in output, and also that both begin to rise again, but at different points in the productive process.

The downward slope of the average total cost curve is attributable to the fact that, with every increase in output, the *fixed cost* portion of total costs is spread over a larger number of units of product than before. The marginal cost curve moves downward because the greatest efficiency of the productive agents that are associated with variable costs cannot be realized unless and until the point of diminishing productivity in the use of these agents has been reached. In our example, agents of this kind are used most effectively when five of the briefcases are produced.¹

TABLE 28. TOTAL, AVERAGE VARIABLE, AVERAGE TOTAL, AND MARGINAL COSTS OF AN INDIVIDUAL MANUFACTURER OF BRIEFCASES

Output (units)	Total Costs	Average Variable Costs	Average Total Costs	Marginal Costs
1	\$ 50.00	\$35.00	\$50.00	...
2	75.00	30.00	37.50	\$25.00
3	95.00	26.66	31.66	20.00
4	112.00	24.25	28.00	17.00
5	127.00	22.40	25.40	15.00
6	144.00	21.50	24.00	17.00
7	164.00	21.33	23.43	20.00
8	187.50	21.50	23.44	23.50
9	215.00	22.22	23.95	27.50
10	247.50	23.25	24.75	32.50
11	280.00	24.64	26.00	38.50
12	332.00	26.42	27.66	46.00

When the output goes beyond five units, marginal costs begin to rise. Their rise tends to raise average total costs also, but this tendency is more than counteracted, for a while, by the continued decline of fixed costs *per unit of output* as these costs are spread over an increasingly larger number of units with each addition to total production. Hence, the ATC curve continues to decline for a considerable time after the MC curve has begun to rise. But this counteracting influence is not effective indefinitely. By and by, the descending ATC and ascending MC curves intersect. The intersection occurs when

¹ We have deliberately oversimplified this example for purposes of greater ease in explanation and illustration, speaking in terms of a few units of a good which would ordinarily be produced in larger lots. The reader who prefers an example which smacks of reality can get it in this instance by multiplying the given quantities by hundreds or thousands, according to his idea of what would constitute *actual* production of a good of this kind.

the total output is eight units, and at this point average total costs are equal to marginal costs.

Cost Considerations Affecting Production. Let us now apply the concepts of average total costs and marginal costs to the case of a manufacturer who is planning his productive activities for the coming period of production. This manufacturer, we may assume, has been making briefcases for some years. He has the plant and equipment required for this type of manufacture. He has estimated his costs of production, which we may assume to be those given in Table 28 and Fig. 41. Under these circumstances, will this manufacturer decide to produce or not to produce; and if to produce, just how large an output will he plan to have?

The answers to these questions will be found in the relationship between this producer's costs of production and his estimate of the price his product will bring when it is ready for the market. In trying to predict the future price of briefcases, our manufacturer will probably rely chiefly upon prices paid for such goods in the past, possibly using the price obtainable during the past few months as a basis of calculation and modifying that figure somewhat if the coming market period seems likely, for one reason or another, to be worse or better than the one just ended. Regardless of the method used by this enterpriser to arrive at a probable future price for his product, he must have in mind some figure (say, \$23.50 a unit) if he is intelligently to adjust his production to anticipated demand.

The Individual Firm's Concept of "Demand." Moreover, we must bear in mind that "demand," to the individual firm in the period of current production, does not appear in the form of a demand schedule of the type familiar to all students of economic principles. To this producer, demand is not "a series of quantities that would be taken at a corresponding series of prices." It is, on the contrary, *a single price* at which he confidently expects to sell his entire output, whether large or small.

This is a reasonable view for a competitive producer to adopt, for, by definition, a competitive market is one in which the action of any one seller is unable to affect the price of the good. Since briefcases of this kind are made by a number of manufacturers and many units of the good will be thrown on the market, this individual manufacturer, by producing or failing to produce, will not be able to influence the price at which the coming stock will sell. Hence, he is justified in assuming that he will receive a uniform price for his output, re-

gardless of the quantity he produces. If, when the cases are ready to market, he should be able to sell any of them whatsoever at \$23.50 each, he would be able to sell his entire output at that unit price. His view of the situation is shown in Fig. 41, in which the demand curve for *this one producer's output* indicates that any quantity he might offer would be taken by purchasers at \$23.50 per unit.

Costs and Anticipated Price. Let us suppose, now, that this potential producer has decided upon the price which, in his opinion, the batch about to be produced will command when completed, and that he has before him the information about costs contained in our table and diagram. If he expects briefcases of this kind to bring \$23.50 each, he will doubtless decide to produce eight units, for this quantity can be made (as is shown in Fig. 41) at a marginal cost equal to the price. To produce more than eight units would mean a loss, since the marginal cost of additional units would exceed the price of \$23.50, with the result that each such unit would be adding less to the producer's income than to his costs. To produce fewer than eight units would also be unwise, since this would mean stopping production where price was in excess of marginal cost, and where each unit produced was consequently adding more to the producer's income than to his costs. Hence we arrive at the conclusion that, at an anticipated price of \$23.50, the manufacturer would decide to make eight of the briefcases.

If he should expect the cases to bring more than \$23.50 each—say, as much as \$32.50—he would want to take advantage of this high price, and would undertake to produce the ten units which could be manufactured at an average total cost of \$24.75. If he stopped short of producing this quantity he would fail to make some cases which could be sold for more than their marginal cost, and if he produced more than ten he would raise his marginal cost above the \$32.50 that is obtainable for his product. Either of these courses of action would bring a loss which our manufacturer could avoid only by fixing his output at ten units. He would not be deterred by the exceedingly high marginal costs (\$32.50) involved in producing ten cases, for marginal costs hold no terrors for an enterpriser so long as average total costs are lower than marginal costs *and also lower than selling price*, as in the present instance. If, however, this enterpriser's study of future prospects should lead him to predict a price of \$22.50, he would be greatly concerned about marginal costs, *since they would in this instance be lower than average total costs*. This does not mean

that he would refuse to produce at a price that is less than total costs; but he would do so only in case this figure was higher than the average *variable* costs involved in producing the quantity in question.

This is true because, though a producer cannot in this sort of situation avoid taking a loss, he would lose less by producing than by not producing. Since fixed costs must, by definition, be met whether goods are produced or not, the enterpriser who cannot get a price high enough to cover *total* costs will ask himself whether the price obtainable will more than cover *variable* costs. If the answer is affirmative, we may be sure that he will produce; for the price received will enable him to pay all *additional* costs resulting from pro-

TABLE 29. INDIVIDUAL AND TOTAL SUPPLY SCHEDULES DERIVED FROM MARGINAL COST SCHEDULES OF INDIVIDUAL FIRMS IN THE PERIOD OF CURRENT PRODUCTION

At the Price of (each)	Individual Firms Stand Ready to Produce					Total Supply
	Firm No. 1	Firm No. 2	Firm No. 3	Firm No. 4	Firm No. 5	
\$17.00	...	...	...	4	6	10
20.00	...	7	...	8	10	25
23.50	8	9	7	9	11	44
27.50	9	10	8	10	12	49
32.50	10	11	9	11	13	54
38.50	11	12	10	12	14	59
46.00	12	13	11	13	15	64

ducing instead of not producing—that is, variable costs—and leave a little over which he can apply to the payment of his fixed costs. He would therefore *lose less* by producing than by not producing—that is to say, he would in this way minimize his loss.

A Summary of Individual Policy in the Period of Current Production. We conclude, therefore, that the individual firm's guide to output in the period of current production is its marginal cost curve. Indeed, that portion of the marginal cost curve which lies *above* the average variable cost curve is a graph of this firm's *individual supply schedule*. In tabular form, it appears in Columns 1 and 2 of Table 29, and clearly consists of a series of quantities of this economic good which, in the period of current production, Firm No. 1 *stands ready to produce* at a corresponding series of prices. Of course, this producer will *actually produce* only one of these several

quantities. In his own best interest, he should and would produce the quantity which, in his individual supply schedule, is associated with the price he expects his output to command; for this is the quantity which at that price would maximize his profits or minimize his losses. Hence, he will consider it more advantageous to produce *at any point on the marginal cost curve that lies above the average variable cost curve* than not to produce at all. The intersection of the marginal cost and average variable cost curves is a *point of indifference*, for at this point the price is just sufficient to cover average vari-

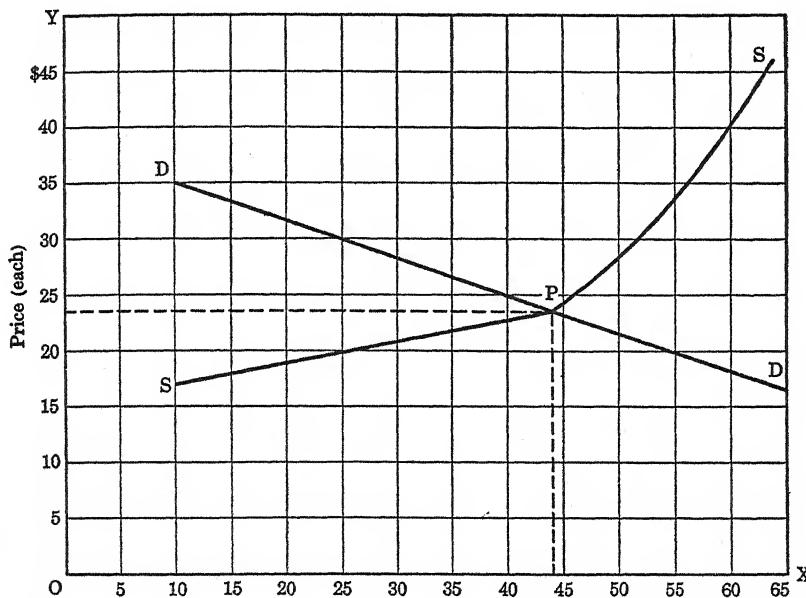


FIG. 42. EQUILIBRIUM OF DEMAND AND SUPPLY IN THE PERIOD OF CURRENT PRODUCTION, UNDER COMPETITIVE CONDITIONS.

able costs, with nothing left over to help pay fixed costs. Below this point it would be better *not* to produce, since in that region the anticipated price is too low to cover even the average variable costs—costs which can be avoided by refusing to produce.

Individual and Total Supply in the Period of Current Production. In any given period of current production, there will almost certainly be differences in the costs of production of the several individual producers. Some, for example, will have less modern machinery and tools than others, or will not yet have adopted the opti-

mum size of business unit. For these and other reasons, the average total, average variable, and marginal costs of individual firms will differ somewhat, and consequently their *individual supply schedules* will differ.

We have indicated these differences in Table 29 by the inclusion of several additional firms. These firms would produce different quantities of these briefcases if they expected the price to be (say) \$23.50; and this is evidence that their marginal costs are not identical. However in order to maximize profits or minimize losses, all five of these firms stand ready to produce at each of the several prices the quantities indicated in the table. Since this is the case, we can add the individual outputs of all firms at each price given, and thus arrive at *total supply* of the five firms, which we assume to be all of the producers in this type of enterprise.

Price Determination in the Period of Current Production. The first and last columns of Table 29 give us the series of prices and quantities which constitutes supply. In Fig. 42 they appear in the form of a supply curve. We have added a hypothetical demand curve which, at the point of intersection with the supply curve, shows that there will tend to be a total output of forty-four units, which will sell at \$23.50 each.

We may generalize to the extent of saying that, in the period of current production, *competitive price tends to equal the marginal costs of all firms engaging in production*. In our example, \$23.50 is the marginal cost of production of all producers, because each of the five firms has adjusted its individual output to the quantity it could produce at the marginal cost of \$23.50.

Anticipated and Realized Prices. We must now face the fact that the price expectations of individual firms may not be realized when the time to sell has arrived. Goods are actually sold not in the long run, or in the period of current production, but in the *short run*. The price that *tends* to prevail in the long run or in the period of current production is not necessarily the price that will actually be received. Indeed, a firm cannot be certain how well it has anticipated the future until the good is ready for sale, when the market price (which may differ from the price or prices anticipated by individual producers) will be determined by the supply and demand conditions of this particular short-run period.

If this price is higher than was anticipated by most producers, it will have a stimulating effect upon future production, and existing

plant and equipment will tend to be used more intensively in the next period of current production. If, on the other hand, the price obtained is lower than producers in general expected to receive, plant and equipment will probably be used less intensively than before. And eventually a series of periods of current production, by influencing supply and therefore price in a corresponding series of subsequent short runs, may be expected to cause producers to make those adjustments which, when completed, lead to the long run.

MONOPOLY PRICES IN THE PERIOD OF CURRENT PRODUCTION

We now look into the calculations of the monopolist as he determines his course of action in a period of current production. In this

TABLE 30. TOTAL, AVERAGE, AND MARGINAL REVENUES OF A MANUFACTURER OF BRIEFCASES UNDER MONOPOLY CONDITIONS

Units Sold	Total Revenue	Average Revenue	Marginal Revenue
1	\$ 39.00	\$39.00	...
2	73.50	36.75	\$34.50
3	103.80	34.60	30.30
4	129.80	32.45	26.00
5	151.00	30.20	21.20
6	168.00	28.00	17.00
7	181.02	25.86	13.02
8	189.44	23.68	8.42
9	193.50	21.50	4.06
10	193.50	19.35	0.00
11	188.54	17.14	-4.96
12	179.76	14.98	-8.78

examination we shall employ the concepts of average and marginal revenue, which require brief explanation.

Average and Marginal Revenue. Average revenue is simply *receipts per unit of goods sold*, and is found by dividing the total revenue received from the sale of a batch of goods by the number of units sold. Marginal revenue is *the amount added to total revenue by the sale of one additional unit of the good in question*.

In Table 30 are given approximate figures showing the total, average, and marginal revenues of a manufacturer of briefcases under monopoly conditions. If, for example, we divide \$129.80 by the four units which yield that total revenue, we get an average revenue of \$32.45. And if we subtract from \$129.80 the total revenue which im-

mediately precedes it—\$103.80—we arrive at \$26.00 as the amount added to total revenue by the sale of five as compared with four units, or a marginal revenue of \$26.00.

In Fig. 43 we use the same cost situation (indicated by the ATC and MC curves) that was presented in Fig. 41. Our purpose in doing this is to show how the substitution of monopoly for competition affects output in a period of current production. The AR and MR

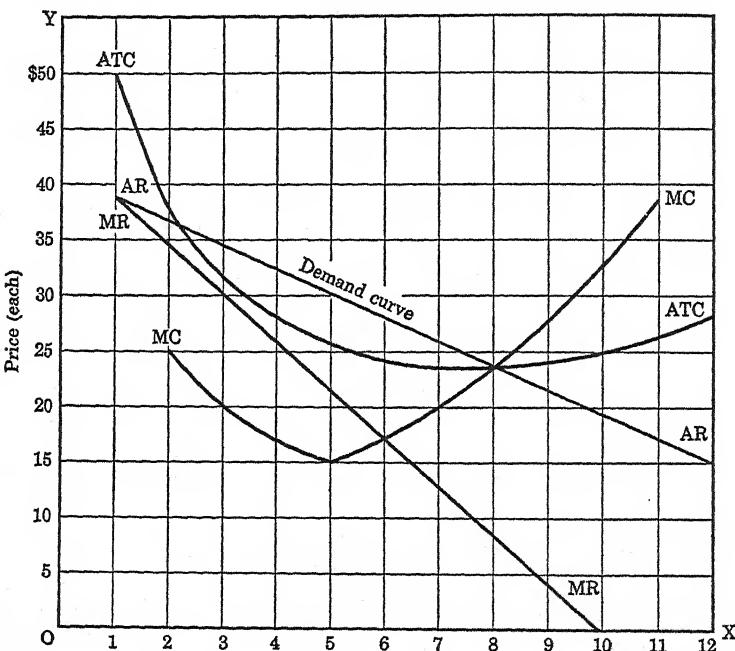


FIG. 43. COST AND REVENUE CURVES OF A MANUFACTURER OF BRIEFCASES, UNDER MONOPOLY CONDITIONS.

curves represent, respectively, average and marginal revenues as given in Table 30. An *average revenue curve is always a demand curve*, and we have here given it both designations.² This demand curve moves downward and to the right, as a *total* demand curve must in order to conform to the Law of Demand; whereas in Fig. 41 the demand curve (which showed demand for his *individual* output

² Of course, the demand curve in Fig. 41 was also an average revenue curve, and likewise a marginal revenue curve, but it seemed best not to complicate the analysis by mentioning this fact at that point.

as seen by a competitive producer) was horizontal throughout. The horizontal demand curve is correct for a competitive seller, who rightly thinks that his entire individual output will sell at a uniform price. But the monopolist knows that, since he is the one and only seller, he will be able to sell more units at a low than at a high price; hence, his concept of demand is indicated by a demand curve of the traditional type.

Considerations Affecting Current Production Under Monopoly. Our monopolist, who is provided with a given quantity of plant and equipment, is now ready to decide upon his current production. Like the individual producer under competition, he finds in his marginal cost curve his best guide to production. Like the competitive producer, he will, if necessary, produce at a price lower than average *total* costs, but not lower than average *variable* costs. But since he is a monopolist, he will probably be able to regulate his production so as to cover total costs and reap a monopoly profit in addition. The general principle he should and would follow is to produce the quantity indicated by the intersection of his marginal cost and marginal revenue curves. In Fig. 43, the quantity indicated is six units, which may be expected to sell at \$28.00 apiece.

The intersection of the MC and MR curves is, of course, the point at which marginal cost and marginal revenue are equal. This is the point up to which our monopolist must go, but beyond which he must not go, if he is to secure the greatest possible total net return from this situation. By failing to produce as many as six units, he would fail to manufacture some briefcases which would sell for more than they cost, as is shown by the fact that the MR curve is higher than the MC curve up to the point of intersection. By insisting upon making more than six, he would produce some units which would sell for less than they cost, since the MR curve is *lower* than the MC curve beyond the point of intersection.

An examination of the total costs (Table 28) and total revenues (Table 30) associated with various outputs of this good leads to the same conclusion. It costs \$24.00 a unit, or a total of \$144.00 to manufacture six of these briefcases; and this quantity can be sold for \$168.00, with a monopoly profit of \$24.00. Similar calculations show that an output of seven units would yield \$17.02, and an output of eight units \$2.01, in monopoly profit. In the period of current production, then, price tends to be at that figure which will bring the monopolist the greatest possible total net return; and the output that

will bring that return is indicated by the point at which marginal cost and marginal revenue are equal—the point of intersection of the MC and MR curves.

Consequences of Realized Prices. As may be true of any period of current production, the price anticipated by the monopolist may fail to materialize when the goods he has currently produced are ready for sale. He may discover that he has overestimated demand, and that the six briefcases he has produced can be sold only if he will take \$25.00 apiece, instead of the expected \$28.00. On the other hand, if he has underestimated the demand for his good, he may be able to sell at \$30.00, or at some other figure substantially higher than the price shown on his demand schedule for six units.

We have seen that exceptionally high or exceptionally low prices influence *competitive* producers in their decisions to utilize existing plant and equipment more intensively in succeeding periods of current production. They have, of course, a similar effect upon the *monopolistic* producer. This influence, it should be remembered, is not limited to the degree of utilization of existing equipment, but plays a part also in bringing about whatever long-run adjustments appear to actual and potential producers to be desirable.

PRICES IN THE PERIOD OF CURRENT PRODUCTION UNDER PARTIAL MONOPOLY

Current production and long-run production are similar under partial monopoly, in that in both cases the partial monopolist must consider the productive activities of other partial monopolists. In the long run he has to decide whether to increase or decrease his plant and equipment, while in the period of current production the burning question is how intensively to utilize the productive capacity already in existence and at his command. In both cases he must take into account what the other producers will probably do, since the activities of each and all will affect the *total* quantity produced, and this in turn will affect the price the product will bring and the amount of monopoly profit.

Since we have already described the long-run calculations of the partial monopolist, we have only to consider the quandary in which he finds himself in the period of current production. His position is in many ways like that of the complete monopolist pictured in Fig. 43. We may assume that he has the same ATC, MC, AR, and MR curves. But in one important respect the scene has changed; for the

AR curve does not now indicate the demand for the output of one producer, but total demand for the output of all of the several partial monopolists. The possibility of extracting monopoly profit from this situation depends upon the extent to which this *total* output can be limited.

Under the conditions we have outlined, the partial monopolist cannot hope to fare as well as a complete monopolist. He could do so only if his rivals in the field refrained altogether from production, which would of course convert the situation into one of complete monopoly. Every addition made to total output by the several producers reduces the margin of monopoly profit, and monopoly profit disappears entirely when total output exceeds the quantity (eight units in Fig. 43) indicated by the intersection of the ATC and AR (demand) curves that takes place *after the ATC curve has ceased to fall and has begun to rise*. Additions to output beyond that point would mean production at less than average total costs, and would be unlikely though not impossible under partial monopoly.

The partial monopolist whose fortunes we have been following would presumably continue to produce currently so long as he felt that the price received would more than cover average variable costs. However, it seems improbable that this small group of individual producers would permit the situation to deteriorate to so great an extent. Instead, practicing the forbearance of which we spoke in our discussion of long-run prices under partial monopoly, they would tend to "stabilize" their individual outputs in such a way as to turn out, more often than not, in a period of current production, a quantity of the good which would bring some gain for all. As in the long run under partial monopoly, so also in the period of current production, price tends to be somewhat lower than it would be if the situation were completely monopolistic, and somewhat higher than a strictly competitive price would be. In the period of current production the price referred to is, of course, *anticipated* and not *realized* price.

PRICES IN THE PERIOD OF CURRENT PRODUCTION UNDER IMPERFECT COMPETITION

In discussing short-run and long-run price under conditions of imperfect competition, we employed belts in place of curves, because we were then dealing with a product which was substantially but not completely uniform. Since differentiation is the earmark of im-

perfect competition, we are warranted in saying that somewhere within a given demand *belt* is a demand *curve* for a differentiated brand of the good in question, and that somewhere within the corresponding supply *belt* is a supply *curve* for that brand. In analyzing current production under imperfect competition, we shall assume that we have isolated the supply and demand conditions relating to

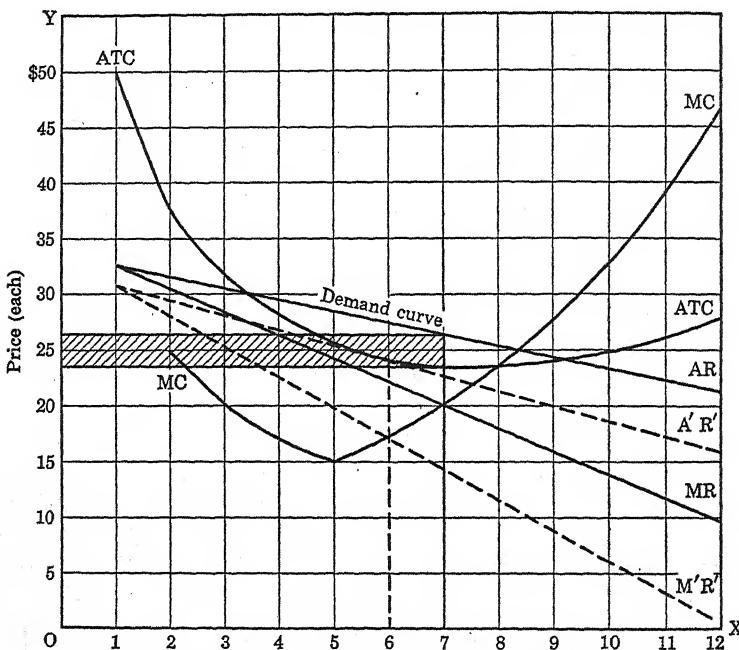


FIG. 44. COST AND REVENUE CURVES OF A MANUFACTURER OF BRIEFCASES, UNDER CONDITIONS OF IMPERFECT COMPETITION.

the differentiated brand, and can present them in the form of curves. For the sake of ready comparison with situations already described, we shall employ the same ATC and MC curves used in our earlier treatment of the individual firm.

Fig. 44, then, shows the cost conditions for a particular make of briefcase which, though not differing widely from brands offered by other manufacturers, is nevertheless preferred by some buyers who are willing to pay a slight premium for this differentiated brand. The demand for this brand is shown in the AR (demand) curve. The bargaining position of this firm is, within its own small field of differen-

tiation, virtually that of a complete monopolist. Hence, this firm will base current production upon an examination of the intersection of the MR and MC curves. In our figure, this quantity is seven units, on which, by reason of differentiation, this manufacturer would make a monopoly profit of approximately \$21.00.

However, the producer of a differentiated brand does not occupy a very secure position. Whatever advantage he enjoys consists of but a slight superiority, real or imaginary, of his product as compared with the products of other producers in the same field. He must keep buyers convinced of the superiority of his brand, or they will change to a similar but slightly cheaper brand. Failure to maintain the differentiation between his brand and other brands would result in a shift of the demand curve to the left. For example, our individual firm might find itself, in a given period of current production, facing a demand curve such as the broken line A'R', which is tangent to the ATC curve. The producer's guide to most advantageous production would then be the intersection of the M'R' and MC curves. The broken line which passes through this point of intersection, and is perpendicular to the base line, meets the ATC curve at its point of tangency with the A'R' curve. At this point, average revenue and average total costs are equal, so that there is now no monopoly profit.

In the period of current production, the individual firm will produce the quantity indicated on his marginal cost curve for any price, so long as the price is higher than the average variable costs of production. Ordinarily, the producer of a differentiated brand will, in the period of current production, be able to command a somewhat higher price than would be available if the situation were perfectly competitive, but a price somewhat lower than would be his under complete monopoly.

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1. Define the "period of current production."
 2. Why are average total costs and marginal costs particularly important in the determination of price in the period of current production?
 3. Distinguish between "demand," as we have defined it, and the individual firm's concept of demand.
 4. "Price tends to equal the marginal costs of all firms engaging in production," in the period of current production. How can this be true, since the costs of individual firms differ?
 5. Distinguish between *anticipated* and *realized* prices of the individual firm.

6. If producers reap profits in a given year, what will be the probable effect of this profit-taking upon production in the following year? Would losses in a given year be likely to affect production the next year? Explain in both instances.
7. "An average revenue curve is always a demand curve." Why?
8. Indicate the significance of marginal costs and marginal revenue in the determination of monopoly price in the period of current production.
9. In the period of current production "the producer of a differentiated brand does not occupy a very secure position." What is the nature of the advantage he enjoys because of differentiation, and why is his hold on this advantage not very secure?

REFERENCES FOR FURTHER READING

See list of references at the end of Chapter 16.

23. International Trade

In describing the process of exchange,¹ we looked briefly into the nature of trade and found that, in the final analysis, it consists of an exchange of commodities and services for other commodities and services. Indeed, the true nature of trade is most easily seen in its simplest form, barter; and for this reason the student of economics is urged in some instances to disregard temporarily the money phenomena of modern exchange and concentrate upon what is often much more significant, namely, the goods phenomena.

Barter, the Essence of All Trade. In one phase of international trade—that which deals with paying for goods imported and receiving payment for goods exported—the question of money is of considerable importance. But in international as in domestic trade, there is often much to be gained by reducing the problem to its simplest terms. If, then, one thinks of trade, whether domestic or foreign, in terms of barter, there is small probability of being led astray by the intricacies of exchange as they appear in our highly complicated economic order.

Similarity of Domestic and Foreign Trade. Our study of trade within a single country has prepared us for an excursion into the field of international business transactions. For, although domestic and foreign trade are not precisely alike, their differences are less pronounced than their similarities. All trade, it will be recalled, is closely related to specialization, and consists of certain persons exchanging surpluses of economic goods for the surplus economic goods of others.

Moreover, in foreign as in domestic trade, the transaction (with few exceptions²) takes place between *individuals*, and not between political units *as such*. When Pennsylvania steel is sold in Florida

¹ In chap. 10.

² As, for example, when the government of the United States provided the government of Great Britain with war supplies.

and Florida oranges are sold in Pennsylvania, the trade is conducted between individuals or business houses within the two states, and not between the states themselves. In like manner, it is ordinarily the individual business men of Europe and South America, and not the governments themselves, that arrange for (let us say) shipments of coffee from Brazil to Sweden, and of textiles and cutlery from England to Chile. When we speak, in later paragraphs, of the foreign trade of the United States or of some other country, it must be understood that the expression is one of convenience rather than exactness, and is used to indicate trade between individuals located in different countries and not between the governments of two or more countries.

Trade takes place, unless restricted artificially by a tariff or other obstacles, whenever buying and selling appear to business men to be advantageous. And foreign trade, like domestic trade, is advantageous whenever (as must always be the case in a free trade) each party to the transaction gives up something he prizes less highly than something else which, through the process of exchange, he receives in return for it. Whether the exchange takes place between two or more residents of a small secluded village; or between business men of widely separated states, such as Maine and California; or between the citizens of different nations, the fundamental principles of trade are bound to apply.

Some Complicating Features of International Trade. In several respects, to be sure, international trade differs from domestic trade. There are differences in customs of the people, in language, in monetary units, and frequently in tariff regulations. These several items of differences have little or nothing to do with trade carried on within a single country, but they often have the effect of complicating trade transactions that go beyond national boundaries.

FOREIGN TRADE OF THE UNITED STATES

We may now give some little attention to the nature of the trade carried on between the people of the United States and those of other countries. In Table 31 are listed certain important transactions in the international trade of the United States for the year 1940.³ The sixteen items shown in this table give a fair notion of the transac-

³ The data for this pre-war year give a better picture of ordinary activities of international trade than would the highly abnormal data of the wartime or early post-war years.

TABLE 31. BALANCE OF INTERNATIONAL PAYMENTS OF THE UNITED STATES, 1940^a

Classes of Transactions	Credits ^b Cash Claims Due U.S. from Foreigners (millions of dollars)	Debits ^b Cash Claims Due Foreigners from U.S. (millions of dollars)	Difference ("+" means balance due U.S.) (millions of dollars)
1. <i>Merchandise</i>			
We sold commodities amounting to.....	4021	2625	+1396
We bought commodities amounting to.....			
<i>Service Items</i>			
2. <i>Freight and shipping:</i>			
We received from foreigners for such services....	223	327	-104
We paid foreigners for such services.....			
3. <i>Tourist expenditures:</i>			
Foreign tourists spent in the United States....	81	223	-142
American tourists spent abroad.....			
4. <i>Immigrant remittances:</i>			
New immigrants brought into the United States....	30	120	-90
Immigrants in the U. S. sent "back home"....			
5. <i>Interest and dividends on private investments:</i>			
We received from foreigners.....	525	215	+310
We paid to foreigners.....			
6. <i>Government transactions:</i>			
Foreign governments paid the United States....	28	122	-94
United States government paid foreigners....			
7. <i>Miscellaneous services:</i>			
We received from foreigners for such services....	164	66	+98
We paid foreigners for such services.....			
8. <i>Contributions:</i>			
We gave to foreign causes.....		55	-55
<i>Capital Movements</i>			
9. <i>Long-term investments:</i>			
Net balance.....		53	-53
10. <i>Changes in international banking accounts:</i>			
Net inflow of banking funds to United States....	873		+873
11. <i>Advance payments by British government</i>	720		+720
12. <i>Miscellaneous capital items</i>		170	-170
<i>Gold, Silver, and Paper Currency</i>			
13. <i>Gold:</i>			
Exports from United States.....	5		
Imports to United States.....		4749	-4744
Earmarking operations (net).....	645		+645
14. <i>Silver:</i>			
Exports from United States.....	4		
Imports to United States.....		59	-55
15. <i>Paper currency movements:</i>			
Net inflow to United States.....	33		+33
16. <i>Other transactions</i>	1432		+1432
	8784	8784	...

^a Source: United States Department of Commerce.^b Credit transactions are those which may be expected to result in payments into the United States; debit transactions are those which will result in payments from the United States to foreign countries.

tions that enter into the foreign trade of this country. We shall examine these several items briefly.

1. Merchandise. Most people, in thinking of foreign trade, have in mind shipments of material goods. Though the significance of such goods in international trade is usually exaggerated by those unfamiliar with the true situation, merchandise is indeed ordinarily the most important single item of American foreign trade. About 45 per cent of the export and 30 per cent of the import items of the United States consisted, in 1940, of merchandise. Some of the specific commodities of which these exports and imports were composed will be noted later. For the present, we may observe that such things as the sale of bunker coal and oil to foreign vessels, ship repairs, and several other items are included among the more usual types of merchandise. Much of the exports of the United States in 1940 consisted of war supplies or "strategic commodities" sent to the United Kingdom and other parts of the British Empire. It has been customary, in the past, to regard silver as an article of merchandise; but the increasing importance of silver shipments in American foreign trade in recent years has led to its being given a separate listing. Silver appears in our table under Item 14.

2. Freight and Shipping. Freight charges entering into foreign trade consist of items arising out of ocean, Great Lakes, and land transit. Ocean freight includes American merchandise carried in vessels owned by foreigners, and foreign goods transported in American bottoms. A foreign trade situation exists also in connection with traffic on the Great Lakes, in which commodities are moved from the United States to Canada, and vice versa. In addition to freight hauled by water, goods transported by rail sometimes enter into international trade. Great quantities of Canadian grain are carried by American railroads from the Great Lakes (usually from Buffalo) to the Atlantic seaboard. An even larger item is that charged by Canadian railways for carrying American lumber, grain, and packing-house products, which in many cases are reshipped from Vancouver or Montreal. Table 31 shows that, in 1940, we paid foreigners \$104,000,000 more for freight and shipping than we collected from them for this type of service.

3. Tourist Expenditures. Expenditures of tourists in foreign countries are also included in the international balance sheet. The expenditures of Americans traveling abroad appear as debits, and those of foreigners in this country as credits. It is estimated that in

1940 American tourists spent \$223,000,000 in foreign countries, as against \$81,000,000 spent by foreign tourists in the United States. This is 60 per cent less than was spent for similar purposes in 1937, and this reduction is attributable to uncertain world conditions which tended in 1940 to discourage foreign travel. Departures from the United States to European and Mediterranean destinations fell from 185,000 in 1939 to 16,000 in 1940. "Canadian-American tourist traffic involves a larger total expenditure than that between any other two countries in the world,"⁴ but there were only 80 per cent as many United States visitors to Canada in 1940 as in 1939, and the number of Canadian visitors to the United States fell off almost 50 per cent. Americans, as is well known, do a great deal of traveling, a fact which may be explained in part by the large per capita income of the United States. Expenditures of foreign tourists in this country are ordinarily about one-quarter as great as those of American travelers in other parts of the world.

4. Immigrant Remittances. Many immigrants who have come to the United States during the past few decades have left behind them in their "old countries" relatives who are partly dependent upon them. From their earnings in this country (which are usually much larger than the incomes to which they have been accustomed in their native lands), these immigrants have often remitted considerable sums to their dependents. Remittances of this kind account for a "debit" item of \$120,000,000 in Table 31. The small offsetting item of \$30,000,000, appearing as a credit, consists of cash brought into the United States by immigrants entering this country in 1940.

5. Interest and Dividends on Private Investments. When capital funds seek investment in foreign countries, they do so because investment opportunities abroad appear to be more advantageous than those at home. The investments are made, of course, with the idea of receiving an income from the securities that have been purchased, and this income forms an item of international trade. American private investments abroad have been placed chiefly in Latin America, Europe, and Canada. Interest on such investments amounted in 1940 to about \$525,000,000, and the foreign holders of American securities received, in that year, interest payments totaling \$215,000,000.

* United States Department of Commerce, *Trade Information Bulletin No. 625*, Washington, Government Printing Office, 1929, p. 11.

6. Government Transactions. We have already noted that foreign trade is usually conducted between individuals and not between governments. But in some instances governments buy from other governments. Credits and debits of this kind in 1940 included (a) net receipts from Panama Canal operations, (b) expenditures abroad by the various executive departments, (c) remittances by the Veterans Administration, and (d) cost of foreign representation in the United States and United States representation abroad.

Between 1923 and 1930, this country received more than \$200,000,000 annually as principal and interest payments on the huge sums borrowed by our allies in World War I. But payments of this kind declined steadily after 1930, and stopped entirely shortly after the beginning of World War II. In 1940, our government paid other governments \$94,000,000 more than it received from them.

7. Miscellaneous Services. Grouped under the heading "Miscellaneous services" are imports and exports of electric power; magazine and newspaper subscriptions; disbursements for advertising; cable, radio, and telephone services; royalties on motion pictures, and so on. In the case of miscellaneous items, as in other international transactions, there are both credits and debits. For the year 1940, as is shown in Table 31, transactions of this kind resulted in a net balance of \$98,000,000 due the people of the United States from foreigners.

8. Contributions. Total contributions made to foreign fields of activity by United States charitable, religious, educational, and scientific institutions during 1940 are estimated at \$55,000,000 on the basis of data submitted by 125 organizations.

9. Long-Term Investments. Citizens of the United States have made investments abroad for many years, and American securities have been bought by foreigners who, for one reason or another, have wanted to invest their funds in this country. Year by year these investments are increased through purchases of foreign bonds and stocks, or reduced by sales of such securities or by the payment of matured bonds. In 1940, the purchases of long-term foreign securities by Americans and the sales of American securities to foreigners resulted in a net balance of \$53,000,000 due the people of other nations.

10. Changes in International Banking Accounts. It is quite common for banks to have deposits with banking institutions of other countries, largely for the purpose of paying balances arising out of

international trade. There has also been an extensive development of commercial short-term loans in foreign countries. A recent government statement showed that American deposits and short-term loans with foreigners amounted to \$137,000,000 at the end of 1940, while similar foreign deposits and loans in America reached the huge total of \$3,980,000,000. This represents a reversal of the situation that existed in 1933, when the figures were, respectively, \$1,082,000,000 and \$487,000,000. The net change in America's international deposits and short-term loans for the year 1940 was \$873,000,000.

The flow of short-term funds from foreign countries to the United States, during the past decade, has been in part the return from foreign money markets of American-owned banking funds, and in part a flight of foreign capital to the United States which was stimulated by political and financial uncertainties in Europe and elsewhere. This inflow of funds affected the trade balance in recent years in exactly the same way as though merchandise to this amount had been sent out of the United States.

11. Advance Payments by the British Government. To facilitate the production and purchase of war supplies in the United States, Great Britain (and also France) made some payments considerably in advance of the export of goods, and provided capital assistance to certain producers where new plant facilities were needed. This item of \$720,000,000 represents payments of these kinds.

12. Miscellaneous Capital Items. The United States Department of Commerce includes under this heading certain capital items which are not explained in detail.

13. Gold. Gold is shipped from country to country for use in the arts, to settle the balances of international indebtedness (as will be explained in the following chapter), and to serve as reserves in the vaults of central banks of various countries. In some cases the central banks are allowed to retain their holdings of gold abroad, and yet have such gold count as reserves if it is segregated and marked in such manner as to indicate that the identical coins or bars "earmarked" are the bank's property, and altogether subject to its disposal. It is not the practice of the Federal Reserve banks to count as reserve any gold held abroad; but when they have come into possession of gold abroad at a time when they held ample gold at home, they have sometimes had it earmarked there, largely to save the expense of shipping to the United States gold that might later re-

quire reshipment. Earmarked gold belonging to an American bank but held temporarily in a foreign bank is set aside to await instructions from the American bank, and cannot of course be used except upon specific order from the bank that owns it.

Following the Munich conference of September, 1938, the flow of gold to the United States was greatly accelerated. In 1939 and 1940, the net gold imports to this country exceeded the gross merchandise exports—a situation without precedent in the history of the United States. Transactions in gold, including foreign shipments and earmarking, resulted in 1940 in a net debit of \$4,099,000,000. Gold exports amounted to only \$5,000,000, net earmarkings equivalent to exports of \$645,000,000 took place, and gold imports totaled \$4,749,000,000. This tremendous importation of gold, which established a new high record for gold shipments to the United States, was influenced largely by political and economic unsettlement throughout the world. Most of this gold came from the British Empire. "Shipments have been greatly in excess of production for several years," observed the Department of Commerce. "There is good reason to believe that many of the principal gold stocks have already been transferred for the most part to the United States."

14. Silver. Influenced greatly by United States Treasury purchases, in accordance with the provisions of the Silver Purchase Act of 1934, we imported \$355,000,000 worth of silver in 1935, \$183,000,-000 worth in 1936, and \$92,000,000 worth in 1937. In 1940, we imported only \$59,000,000 worth of silver, the lowest imports of this kind since the Silver Purchase Act went into effect. Since we exported \$4,000,000 worth of silver in 1940, we had a net debit balance of \$55,-000,000 on this item for that year.

15. Paper Currency Movements. There is ordinarily found, in every important country, a considerable amount of the paper currency of other important countries. In 1940, a good deal of American paper money which had been abroad was shipped back to this country. Deducting from such receipts the shipments of foreign paper currency out of this country to the countries of issue, we had a net credit of about \$33,000,000, which affected the balance sheet as it would have been affected by a shipment of merchandise from the United States.

16. Other Transactions. This is a residuum, made up largely of special items which it is not feasible to show separately.

Foreign Trade in Prosperity and Mild Depression. Since 1940 was a year of moderate business depression, the figures in Table 31 are lower than they would be if we had chosen a year of prosperity, say 1928. For in 1928 the total credits (and therefore the total debits) on the international balance sheet amounted to \$10,559,000,000. Hence, the foreign trade of the United States in 1940 was only about 83 per cent as great as in 1928. We shall not undertake to examine here the 1928 figures item by item, but we may note the fact that American exports of merchandise in that year totaled \$5,334,000,000, and American imports of merchandise \$4,497,000,000. This means that exports and imports of merchandise in 1940 were, *in terms of dollars*, approximately 75 and 58 per cent, respectively, as important as in 1928. However, since the price level was slightly lower in 1940 than in 1928, the decline in actual *volume of commodities* was somewhat less than the decline indicated by a comparison of the total value of merchandise exports and imports for these two years.

AMERICAN EXPORTS AND IMPORTS OF MERCHANDISE

In 1940, 45 per cent of the export items of the United States, and 30 per cent of the import items, consisted of merchandise, as is shown in Table 31. Twelve years earlier, in 1928, when world trade was being transacted on a more extensive scale, these percentages were 50 for exports and 40 for imports.

We turn now to the consideration of some of the most important articles of merchandise that enter into American foreign trade. In Tables 32 and 33 are listed, respectively, the principal commodities exported and imported by the people of the United States. Two columns of figures are given in each table, the first being a five-year average for 1923-27, and the second for 1940. The five-year average represents more nearly "normal" conditions than the 1940 figures, since the half-decade that has been chosen includes both "good" and "bad" years, from the business point of view, whereas 1940 was less good than average but was marked by unusually large exports of equipment for use in war.

Merchandise Exported from the United States. Of the fifteen items that appear in Table 32, five are of special interest because of their large contribution to the volume of total exports of this country. Heading the 1923-27 list is cotton, a commodity in the production of which the United States leads the world. Our five-year average gives to cotton an annual export value of about \$900,000,000, but in

some years the figure has been above a billion dollars. However, our cotton sales in the world market are meeting increasingly stiff competition from other cotton-producing countries, and will probably never regain their past preeminence. Japan was our best pre-war customer in the purchase of cotton, with England running a fairly close second.

Next in importance in the five-year average are petroleum and petroleum products (such as gasoline, kerosene, and lubricating oils),

TABLE 32. VALUE OF PRINCIPAL COMMODITIES EXPORTED FROM THE UNITED STATES^a

Classification	Value in Thousands of Dollars	
	Five-year Average, 1923-1927	1940
1. Cotton, raw.....	891,634	209,231
2. Petroleum and petroleum products.....	464,313	310,184
3. Machinery, all classes.....	359,491	665,428
4. Automobiles, including engines and parts.....	281,515	641,184
5. Wheat, including flour.....	275,291	34,106
6. Iron and steel products.....	159,237	588,953
7. Tobacco, unmanufactured.....	149,588	44,045
8. Copper and copper manufactures.....	147,690	155,000
9. Animal fats and oils.....	144,089	18,065
10. Coal and coke.....	140,517	92,254
11. Cotton manufactures.....	135,113	60,300
12. Meats.....	108,725	21,745
13. Sawmill products.....	101,997	36,781
14. Fruits and nuts.....	100,355	34,411
15. Rubber and rubber manufactures.....	51,163	44,410

^a Source: *Monthly Summary of Foreign Commerce of the United States*, December, 1940.

which we often export to the extent of approximately a half-billion dollars' worth a year. The export item third in rank, judged by value of product, is machinery of all kinds, including agricultural and industrial implements, office appliances, printing machinery, and so on, with values approximating \$360,000,000. Next in importance are automobiles, and automobile engines and parts. This item is one of increasing significance. Though the average for the five-year period was only \$281,000,000, there had been a steady advance in the exports of automobiles for several years prior to the depression that began in 1929. The figure for 1927, for example, was \$388,000,000. The 1940

exports of machinery and automobiles were almost double the five-year average, because of extensive wartime orders. This is the explanation, also, of the large exports of iron and steel which, in 1940, were approximately four times as great as the average in 1923-27.

The last item of exports that we shall note specifically consists of wheat and flour, which in some years have brought to American exporters payments totaling slightly more than \$400,000,000, and in other years somewhat less than that amount. The United States has been a consistent exporter of wheat, for the country produces regularly more foodstuff of this kind than can be disposed of in the home market. However, the wartime efforts of other countries to make themselves more largely self-sufficient in the production of foodstuffs reduced substantially the quantity of wheat purchased from the United States by foreigners. The extremely low export of wheat in 1940 reflects this effort. Post-war shortages of grain in Europe and elsewhere brought our exports of wheat above the pre-war figures.

Our exports of petroleum are made possible, of course, primarily because important oil fields are located within our national boundaries. We are fortunate, likewise, in having land and climatic conditions favorable to the growth of certain agricultural crops. The suitability of the South for cotton production, and almost ideal conditions for the growing of wheat in the Middle West and North West, enable us to raise these crops so advantageously that it pays to produce both cotton and wheat for export. In machinery and automobiles we have commodities that are manufactured on the basis of large-scale production. This is a field of manufacture in which American enterprises excel; and here, as in the items mentioned above, production is carried on so advantageously that it is profitable to produce not only for the domestic market but for foreign markets as well.

Merchandise Imported by the United States. In Table 83 the first four items have stood out in most years as exceptionally important from the point of view of import values. The cotton goods manufacturers of England look to the United States for the bulk of their raw material, and the silk manufacturers of this country have depended upon producers in other countries for the raw silk from which to spin and weave silk cloth. So great was the demand of American manufacturers for raw silk, that average annual silk imports totaled, in 1923-27, almost \$400,000,000 in value. But the encroachment of rayon upon real silk is indicated by the steadily declining imports of raw silk into this country; and, of course, our

entry into World War II put a stop to our imports from Japan, which was formerly the source of most of our raw silk. Another important raw material for which we have depended almost wholly upon other countries is crude rubber. Owing largely to our enormous output of automobiles and motor trucks, and the consequent demand for rubber tires, we have often imported annually

TABLE 33. VALUE OF PRINCIPAL COMMODITIES IMPORTED INTO THE UNITED STATES^a

Classification	Value in Thousands of Dollars	
	Five-year Average, 1923-1927	1940
1. Silk, raw.....	379,980	125,997
2. Rubber, crude.....	326,935	303,118
3. Sugar, cane.....	296,090	127,309
4. Coffee.....	262,463	126,808
5. Paper and paper manufactures.....	128,279	132,618
6. Wool and mohair.....	110,894	84,604
7. Furs and fur manufactures.....	108,804	73,662
8. Petroleum and products.....	105,151	70,110
9. Hides and skins.....	100,078	50,188
10. Copper, ore and manufactures.....	92,239	73,492
11. Tin, including ore.....	86,685	130,981
12. Wood pulp.....	81,879	75,414
13. Fruits and nuts.....	80,745	46,997
14. Cotton manufactures.....	80,739	28,747
15. Sawmill products.....	74,459	24,177
16. Wool manufactures.....	72,354	25,161
17. Burlaps.....	72,176	45,476
18. Vegetable oils and fats.....	71,411	55,838
19. Tobacco, unmanufactured.....	69,834	36,792
20. Fertilizers.....	67,319	27,207

^a Source: *Monthly Summary of Foreign Commerce of the United States*, December, 1940.

from the Malay Peninsula more than \$300,000,000 worth of crude rubber, which is here manufactured into rubber products. In one exceptional year (1926) our imports of rubber amounted to \$500,000,000. Japanese military activities in Malaya in early 1942 put an end to trade with this great rubber-producing region; and the development of synthetic rubber in the United States indicates that we shall never again depend so extensively as in the past upon imports

of natural rubber, but shall use increasingly large quantities of synthetic rubber for many purposes.

We produce in the United States a part of the sugar required by our people, but the bulk of this commodity is imported from Cuba. Our average annual imports of sugar in "good times" amount to some \$300,000,000. Most of the imported sugar comes to us in the raw or unrefined state, and is subjected to manufacturing processes in American sugar refineries. Coffee, of course, is a product we do not attempt to grow in the United States. Instead, we import our coffee from South America (chiefly from Brazil and Colombia), and we pay to foreigners for this commodity a little more than a quarter of a billion dollars annually in years of prosperity.

TABLE 34. PERCENTAGE DISTRIBUTION OF UNITED STATES EXPORTS AND IMPORTS, BY CONTINENTS, 1940^a

	Percentage of Total Exports	Percentage of Total Imports
Northern North America.....	18.0	16.6
Southern North America.....	8.5	9.7
South America.....	10.8	15.0
Europe.....	40.9	14.8
Asia.....	15.4	37.7
Oceania.....	2.4	1.3
Africa.....	4.0	4.9

^a Source: *Monthly Summary of Foreign Commerce of the United States*, December, 1940.

Raw Materials vs. Manufactures. Without dealing further with individual items of international trade, we may make the general observation that American exports consist in the main of manufactured goods, and American imports are made up rather largely of raw materials. There are, to be sure, some considerable exceptions to this statement. But the generalization is sufficiently true of present conditions, and it has special significance as indicating a definite trend. At present, approximately 65 per cent of our commodity exports consist of goods partly or wholly manufactured, as against 40 per cent in 1880; and whereas in 1880 we imported only about 20 per cent of our raw materials used in manufacturing, today we import approximately 35 per cent of such materials. We see here an illustration of the well-known fact that America is becoming more distinctively industrial and less distinctively agricultural.

Direction of American Foreign Trade. Before quitting the subject of American exports and imports of merchandise, we may note briefly the sources of the imports into this country and the destinations of our exported commodities.

Table 34 gives an idea of the direction of American international trade on the basis of continental divisions. The figures here given are for 1940. To Europe went 41 per cent of our commodity exports in that year, including cotton and other raw materials, foodstuffs, machinery, automobiles, and so on. Economically, Europe is essentially a manufacturing region, and yet Europeans normally buy a large quantity of American manufactures, which are attractive because of their high quality and low prices. Manufactured goods make up about one-half of our usual exports, the other half consisting of raw materials.

About 26 per cent of our exports in 1940 were sold to our neighbors in North America. Two-thirds of these commodities were manufactured goods. Asia, our next best customer, took almost 50 per cent more of our goods than South America, our third best. Nearly 60 per cent of our sales to Asia were of manufactured goods, while "semi-manufactures and finished manufactures" made up about 95 per cent of the goods exported to South America, Oceania, and Africa.

In imports, Asia headed the list in 1940, sending us nearly 38 per cent of all commodities brought into this country. Fifty-five per cent of these goods were raw materials, of which rubber was the most important single item. Europe ordinarily comes second in sending merchandise to the United States, but World War II so greatly reduced our 1940 imports from Europe that North America (with 26 per cent) and South America (with 15 per cent) took second and third places, respectively, in that year. Three-fourths of the goods usually bought in Europe by Americans are manufactures, a fact which attests the industrial activity of that continent. United States imports from North America are chiefly from Canada, Cuba, and Mexico. Three-fourths of these purchases are of manufactured goods. The imports from South America, on the other hand, consist of raw materials to the extent of four-fifths of the total. Coffee from Brazil and Colombia, wool from Argentina, and nitrates from Chile account for the bulk of these imports. Oceania and Africa are relatively unimportant in the matter of exports from and imports to the United States.

GAINS THROUGH INTERNATIONAL TRADE

Trade, as we have so often said, consists of the exchange of surpluses that arise from the practice of specialization. International trade is the result of geographical or territorial specialization. It is specialization pushed beyond national boundaries. Nowhere are the benefits of specialization more clearly seen than in foreign trade. This is particularly true in the case of certain materials which depend upon favorable climatic conditions if they are to be produced with small effort. Sugar, coffee, cotton, rubber, and several other commodities fall within this group. Since they may be grown with slight expenditure of capital and labor in some parts of the world, but in other regions only at great cost, if indeed at all, it is obviously advantageous to resort to specialization and exchange in the production of such goods.

Success in Relation to Natural Endowments. It is generally recognized that success is most likely to attend the efforts of the individual who engages in the type of work for which he is best fitted by nature. Jack Benny and Bob Hope have probably achieved greater success in radio and pictures than they could have hoped for in academic circles; and, in like manner, our college professors doubtless do well to confine their efforts to things academic rather than to venture into the field of comedy. It is equally true that a nation is most likely to prosper economically if it applies its energies to the type, or types, of production in which it is able to engage most efficiently.

Two Important Advantages of Foreign Trade. In dealing with the benefits of international trade we shall speak from the American point of view, though the choice of country makes no difference, of course, in the principles involved. In general, the people of the United States gain through foreign trade in that they are enabled, by reason of this trade, first, to enjoy some goods of which they would otherwise be deprived; and second, to secure other commodities at lower prices (or at least to *greater advantage*) than if the goods were produced in this country.

The Enjoyment of Exotic Products. The first of these gains is fairly apparent. It is true that bananas, coffee, and the like might possibly be grown in the United States under glass. But we know that, without any question, production carried on under such conditions would be highly disadvantageous and would result in prices

so excessively high that they could not be paid by the average citizen. Consequently, we are justified in saying that international trade brings to us certain goods which, in the absence of such trade, we should not be able, as a people, to procure.

The Principle of Comparative Costs. The second gain noted above is somewhat less obvious; and yet an enormous amount of foreign trade is carried on, not because in its absence a country would be compelled to get along without desirable goods, but rather for the reason that, in the output of a good that could be produced in two countries, it is often advantageous for one country to defer to the other. That is, the country that is less favorably equipped for a special kind of production yields to the country that is particularly well prepared to turn out the good in question. This latter country thus specializes in making the good, producing enough not only for itself but for the other country as well, with the result that both benefit by the arrangement.

Absolute Advantage. This principle, which is known as the principle of comparative costs, is readily understood when the advantage is *absolute*, but it is more difficult to see in a case of *comparative* advantage. It is clear, for example, that it would be wise for the experienced banker to concentrate upon the problems of banking, and for his stenographer to specialize in typing and similar work. The point is that each is, in his or her particular field of endeavor, more skillful than the other; and it would be wasteful for the stenographer to take a turn at money and credit while the banker pounded the typewriter. The latter is more productive when specializing in money matters than in the rôle of typist; and the stenographer is more productive in her field of specialization than in determining upon the placing or calling of loans.

By the same token, Brazil is more effective than the United States in the growing of coffee, and this country is more productive than Brazil in the manufacture of farming implements. In this instance, it is said that Brazil has an absolute advantage in the production of coffee, and the United States an absolute advantage in the production of farm machinery. In cases of this kind, it is clearly the part of wisdom for these countries to engage in foreign trade, so that the United States may get her supply of coffee, and Brazil her farming implements, at lower costs (in terms of land, labor, and capital) than would have to be met if the two nations attempted to practice self-sufficiency.

Comparative Advantage. But (reverting to our former illustration) let us suppose that the banker is himself an expert typist and is able to operate the typewriter so skillfully as to exceed the speed of his stenographer. In this instance, he would have an *absolute* advantage in both banking and typing. Should he, then, act as his own typist, or should he allow his stenographer, who is a less skillful typist than he, to write his letters and other papers? The common-sense answer is that the typing should be delegated to the stenographer; for, though the banker is more productive than the stenographer in both banking and typing, yet he is more productive as a banker than as a typist. Therefore, it will pay him better to concentrate upon banking and allow another to do his typing. Because of the specialization of the banker in the field which is for him most productive (namely, finance), the stenographer is said to have a *comparative advantage* in typing.

Consequences of Comparative Advantage. We find that a great deal of international trade depends upon advantages of this latter type. So fortunate is the United States in the matter of natural resources, efficient management, and competent labor, that it is able to produce a great many commodities at an absolute advantage. But its advantage in the production of a limited number of articles is so great that in some instances it willingly surrenders absolute advantage in one form of production in order to embrace more fully a still greater absolute advantage in another.

The items that are neglected by us are then produced at a comparative advantage by other countries, which are thus able to engage in trade with the United States; and both countries gain in the process. It is claimed, for example, that we could produce flax quite as advantageously as any country in the world. But our facilities for growing other agricultural crops are so pronounced (and so superior to our advantages for the raising of flax), that, so far as agriculture goes, we have normally specialized in cotton, wheat, and other farm products, and imported our flax from Russia and Belgium.

Effectiveness of Productive Effort. Whether the advantage enjoyed by a nation is "absolute" or "comparative" does not matter particularly. The important thing is that the people of a country should, from the economic point of view, always engage in those types of production in which their efforts will be employed most effectively. In some economic activities, the laborers of one country

may be much more productive than those of another. In the mining of coal, for example, the coal workers of the United States are far more productive than the coal workers of England. It does not follow from this fact that no coal should be mined in England; but if there are other industries in which England has an absolute advantage over the United States, or in which she suffers a smaller disadvantage (enjoying, therefore, a comparative advantage), Englishmen would do well to concentrate upon these industries and leave the mining of coal to the laborers of the United States.

Some Reasons for Productive Superiority. In suggesting that labor is more productive in some countries than in others, a word of caution is necessary. The expression is not used with the thought of implying that this superiority results from greater industry or skill on the part of the workers, though this might, indeed, be the case. But it is probable that the greater productivity comes more often from conditions other than the workers' greater skill and aggressiveness. In the case of coal mining cited above, the American worker produces more than twice as much per day as the British worker. But if the American miner were put to work in British mines, it is likely that his productive superiority would immediately disappear. For this superiority is due chiefly, and perhaps wholly, to the greater thickness and accessibility of coal seams in the American mines and to the employment of more mining machinery here than in Great Britain. Advantages, "absolute" or "comparative," do sometimes result from exceptional intelligence and skill on the part of labor. But probably more often they are attributable to natural resources or climatic conditions, to the great abundance of capital of modern types, to exceptionally able management, or to a combination of several of these factors.

The gains of foreign trade, then, are similar to the gains of domestic trade. Through geographical specialization, as through individual specialization, the total product is increased. By creating and exchanging surpluses of specialized goods, individuals are enabled to secure more commodities and services than would be available without specialization. If this is true of individuals within a country, it is equally true of individuals in different countries; and foreign trade, as was pointed out at the beginning of the chapter, is almost wholly trade between individuals and not between nations.

1. In what respects are domestic trade and foreign trade similar? In what respects are they dissimilar?
2. Does the expression, "the foreign trade of the United States," refer to trade of this government with other governments?
3. What was the total amount of foreign trade (expressed in dollars) of the United States in 1940, as shown in Table 31?
4. What part of our total foreign trade consists of merchandise transactions?
5. Which are greater, our exports or imports of merchandise?
6. Why is gold shipped from country to country? How does "ear-marking" lessen the amount shipped?
7. How do you explain the fact that the American item of "tourist expenditures" is much larger than the item indicating foreigners' tourist expenditures in this country?
8. Name the five principal exports of the United States, giving some idea of the value of each.
9. What is there about our productive abilities which makes it possible for us to export these five items in large quantities? Examine each item separately in answering this question.
10. Name the four principal imports to the United States, giving some idea of the value of each.
11. From what regions do these four commodities come? Would you classify them as "raw materials" or "manufactured goods"?
12. It is said that the United States is becoming more distinctively industrial and less distinctively agricultural. Illustrate with items entering into foreign trade.
13. Upon what geographical regions are we chiefly dependent for our imports?
14. What geographical regions are the leading purchasers of American exports?
15. What is the relationship between international trade and specialization?
16. What are the two great advantages of foreign trade?
17. "In the output of an article that could be produced in two countries, it is often advantageous for one country to defer to the other." Why?
18. Give an example of "absolute advantage" as it may be seen in production by two countries.
19. Give an example of "comparative advantage."
20. In the manufacture of many kinds of goods, American workers are "more productive" than the workers of other countries. Why?

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24. *The Payment of International Obligations*

We turn now to one of the complications of international trade which has to do with making payment for goods imported and receiving payment for goods exported. The difficulty in effecting these payments arises partly from differences in the monetary units used in two countries—but it is also due, in part, to the distances involved.

THE MECHANISM OF FOREIGN EXCHANGE

Payments in Long-Distance Trade. The first of these items does not, of course, affect domestic trade. But the second may prove to be something of a problem within a country of great size. In trade between Massachusetts and California, for example, there is the necessity of making and receiving payment. If a Boston shoe manufacturer sells his product to a San Francisco merchant, he probably receives in payment a check payable at a San Francisco bank. This check he deposits in his own bank in Boston, but the Boston bank must in some way collect from the bank in San Francisco. Prior to the introduction of the Federal Reserve System, a charge was made for this service, theoretically to cover the cost of gold shipment from California to Massachusetts and loss of interest during the period of transport, though in reality the actual gold was seldom transferred. Check collections of this kind are now made without charge, through the Federal Reserve banks, by means of the inter-district settlement fund (which was described in Chapter 12), so that the payment of long-distance domestic obligations no longer constitutes a real problem.

Gold as International Money. In international trade some of the difficulties that arise from differences in monetary units have been disposed of in normal times by expressing international obligations in terms of gold. Though British paper money would not be

acceptable to an American exporter of cotton since it could not be used in ordinary business transactions in this country, gold to the proper amount is quite welcome, because it can be converted readily, and without loss, into American dollars upon application to the United States Mint. In like manner, American gold is acceptable in foreign countries operating on a gold standard. What we are saying, then, is that gold, because of its desirability as a commodity, is generally acceptable and serves as money practically throughout the world.

Avoidance of Gold Shipments. It would be highly undesirable, however, to make payment for all international transactions in actual gold. An arrangement of this kind would have meant in 1940 the shipment of about \$17,500,000,000 worth of gold to take care of the trade transactions between the United States and other countries, as may be seen by examining Table 31. In 1929, when foreign trade was greater than in 1940, the figure would have been some \$21,000,000,000. Fortunately, there is no need to make such huge shipments, for in foreign trade, as in domestic trade, business transactions tend to offset one another. It is a truism in international trade that, over a long period of years, a country cannot sell goods unless it will buy; that is, it cannot hope to engage in export trade unless it is willing also to import goods from other countries. This is a matter into which we shall inquire shortly.

Economy in the Use of Gold. Table 31 shows that in 1940 the foreign trade of the United States consisted of exports and imports amounting to some \$17,500,000,000. Of this amount, gold movements came to \$4,754,000,000, or 27 per cent of the total. We have seen that this was a highly abnormal year in the matter of gold shipments, since foreigners sent large quantities of gold to the United States in the interests of safety. Hence, we shall understand better the rôle played by gold in international trade if we consider a year of both peace and prosperity. In 1928, for example, less than \$1,000,000,000 worth of gold changed hands in carrying out \$21,000,000,000 worth of international business transactions. The reason so huge a volume of trade can be transacted with so slight a movement of gold is that, just as in the clearing houses of our banking system, claims are set over against claims, debits against credits, and thus most obligations are canceled without necessitating the shipment of gold.

The general principle involved in the cancellation of debits and credits arising in international trade may be made clear through a

very simple illustration. Let us suppose England and the United States to be on the gold standard, as they were prior to 1931, with no governmental restrictions upon the shipment of gold. Now if, under these conditions, the Remington Typewriter Company sells \$10,000 worth of typewriters to the London and North Eastern Railway, and at about the same time the Wedgwood Pottery Company ships a £2055 order of china to Gimbel Brothers of New York, there are several possible ways of settling these obligations. With our assumption of £1 sterling being equal to \$4.87, as in 1931, the value of the shipment of typewriters would equal exactly the value of the shipment of china. Hence, the shipments of goods might be paid for by the shipment of gold, as shown in Fig. 45.

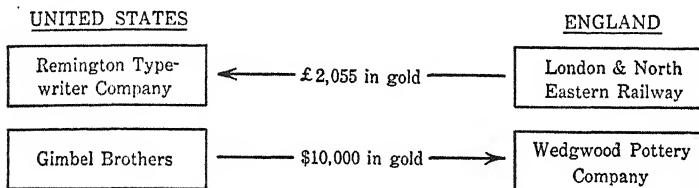


FIG. 45. SETTLEMENT OF INTERNATIONAL OBLIGATIONS BY GOLD SHIPMENTS.

The Cancellation of International Obligations. But it is troublesome and costly to ship gold to England from the United States, and to the United States from England. We may be sure that these importers, whose problem it is to effect payment, would try to avoid an actual transfer of gold. This would be fairly easy if all four parties concerned were acquainted with one another and knew of the sales that had taken place. In such event it could easily be arranged that Gimbel Brothers should pay \$10,000 to the Remington Typewriter Company, and the London and North Eastern Railway Company a like sum in British money (£2055) to the Wedgwood Pottery Company. Through a canceling-out process of this kind both obligations could be met without the use of gold. The transaction would be as in Fig. 46.

This is, fundamentally, the financial transaction that takes place in the settlement of obligations arising in foreign trade, but the process is not quite so simple as it appears above. Our illustration is based upon two assumptions which we cannot make with safety, in addition to the hypothesis that there is no governmental restric-

tion to the free shipment of gold between these two countries. The first is that the parties engaging in international trade know of each other's business dealings with foreigners; and this is certainly a far-fetched notion, in view of the large number of persons engaging in such trade. The second assumption, that transactions of exactly equal amounts (in the present case, of \$10,000 each) can be located and canceled out, is likewise not warranted.



FIG. 46. SETTLEMENT OF INTERNATIONAL OBLIGATIONS BY CANCELLATION.

FOREIGN EXCHANGE BASED ON GOLD

The Use of "Foreign Exchange." For these and other reasons, there has come into existence a class of middlemen who are bankers or private dealers in "foreign exchange" (the name given to foreign drafts or bills of exchange). The introduction of these bankers into the situation removes the difficulties we have just described. Their presence in the field makes it unnecessary for exporters and importers to know one another, for these bankers provide a recognized market in which exporters can sell their claims against foreigners, and importers can purchase bills of exchange with which to pay obligations due exporters. There is the further fact that these dealers in foreign exchange, like commercial bankers, exchange bank credit for personal credit, and thus render it more generally acceptable.

The entrance of the banker into the picture gives us a situation such as is shown in Fig. 47. The Remington Typewriter Company wishing to secure payment at once, sells to a New York bank (dealing in foreign exchange) a draft or commercial bill ordering the London and North Eastern Railway to pay the Remington Typewriter Company £2055, or its equivalent in gold. This sale of the endorsed draft gives the Remington Typewriter Company immediate

possession of the \$10,000 due this concern; and the bank proceeds to collect the draft by sending it to a correspondent bank in London, which in turn presents it to the London and North Eastern Railway Company and receives payment in British money. Gimbel Brothers, on the other hand, buy from the bank a banker's bill of exchange for £2055, which it forwards to the Wedgwood Pottery Company; and this concern, by presenting the bill at the correspondent bank, secures payment for the shipment of china to the Gimbel store. Here, again, all claims have been settled without transfer of gold overseas.

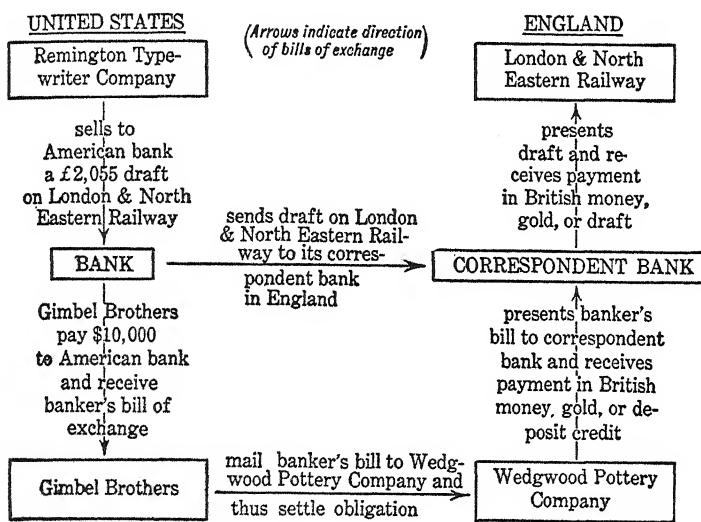


FIG. 47. THE USE OF "FOREIGN EXCHANGE."

"Foreign Balances" of Dealers in Exchange. We may bring our illustration closer to reality by multiplying instances. It must be understood that not only the Remington Typewriter Company but thousands of other American exporters are selling to the American bank claims upon English importers. The bank, by sending the purchased drafts to its correspondent bank in London, builds up in the London organization a large balance which is held subject to the order of the American bank. But, also, the American bank is constantly selling banker's bills (such as that purchased by Gimbel Brothers) which before long are presented for payment at the correspondent bank; and these payments bring about a steady reduction

in the balance that is being built up in the manner described above. It must be remembered, of course, that there are many banks dealing in foreign exchange, and many correspondent banks in foreign countries, instead of only the one of each that enters into our example.

In the payments described above, the American concerns took the initiative in both instances; that is to say, the Remington Typewriter Company "drew" on the London and North Eastern Railway, and Gimbel Brothers bought a bill of exchange with which to pay their indebtedness to the Wedgwood Pottery Company. It should be obvious, however, that the British companies might have made the first move, the Wedgwood Pottery Company selling to the London bank a draft on Gimbel Brothers, and the London and North Eastern Railway purchasing from this bank a banker's bill of exchange with which to remit to the Remington Typewriter Company. There is no universal practice in the matter; in some instances the exporter will "draw" and in other cases the importer will take the initiative and settle the account by forwarding a bill of exchange. Whether one method or the other is employed depends upon the terms of the business transaction between exporter and importer.

It would be possible, of course, for importers always to meet their obligations through the purchase of banker's bills, thus obviating the use of commercial bills such as that employed in the transaction between the Remington Typewriter Company and the London and North Eastern Railway. The effect is the same whichever method is adopted. In every instance importers pay funds into banks of their respective countries, and exporters draw funds from banks, the exporters by selling claims upon foreign concerns and the importers by buying claims. If, then, the value of all goods exported from the United States to England is exactly equal to the value of goods exported from that country to the United States, American importers will pay into American banks handling foreign exchange precisely the amount which American exporters will draw out. Likewise, the payments of English importers to British dealers in exchange will equal the withdrawals by English exporters. Under these conditions, all payments necessitated by foreign trade may easily be made without shipment of gold.

"Triangular Exchange." The settlement of international indebtedness is often a much more complicated matter than is suggested by the simple processes we have described. We have referred, for example, to the fact that a country's imports are paid for, in the

main, by its exports. But in the case of two countries, one may export to the other considerably more goods than it imports from that country. It would seem, in a case of this kind, that a great deal of gold would have to be transferred in order to make up the balance; and, of course, transfers of gold do take place. There are ways, however, to avoid the actual shipment of gold in many instances. An example of "triangular," or "three-cornered," exchange will illustrate this point.

There are some countries from which the United States imports a large quantity of goods, but to which it sends but few goods in return. We have already seen that in normal times we buy large quantities of silk from Japan, coffee from Brazil and Colombia, and rubber from the Malay Peninsula. In instances such as these (and especially when the import consists of raw materials from a rather primitive country), our imports from individual countries exceed our exports to these countries. On the other hand, we export to certain countries (as, for example, to England) more than we import from these specific countries. If we add to these facts the assumption that England exports to one of these countries (say, to Colombia) more than she imports, we have conditions such as form the basis of triangular exchange and make it possible to effect settlements without the use of gold.

Since American imports from Colombia materially exceed our exports to that country, while our exports to England are greater than our imports, there should be available in New York an abundance of London exchange, but little or no opportunity there to buy bills of exchange payable in Colombia. How, then, shall American importers settle their accounts in Colombia? And how shall English importers pay bills due manufacturers and merchants in the United States for shipments from America to England? The problem is solved by American importers purchasing, in New York, London exchange which can be used for the settlement of debts in Colombia. For London is a world clearing house for foreign exchange, and exchange drawn on a London bank is acceptable in virtually any part of the world. This London exchange originates through American exporters drawing on English importers and then selling these drafts to New York dealers in exchange. Therefore, American importers can pay for goods imported from Colombia by sending to Colombian business men the London bills they have bought in New York.

The bills can then be sold by these Colombian exporters to other

persons in their country, who in turn have imported goods from England and are anxious to have drafts on London with which to meet their obligations. When the Colombian importers have settled their accounts with English exporters in this way, the exporters present the drafts for collection to the English importers of American goods (upon whom they were originally drawn), and when they are paid, all obligations have been met. The several steps in the

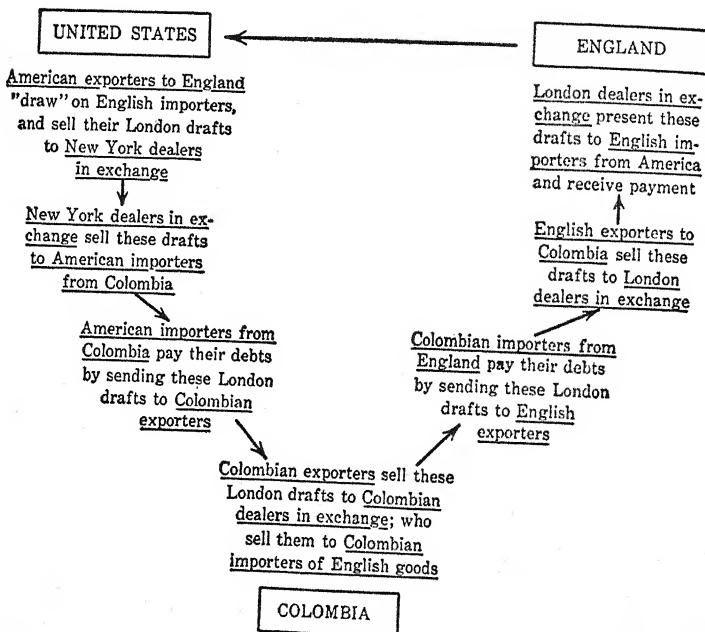


FIG. 48. AN EXAMPLE OF "TRIANGULAR EXCHANGE."

process are illustrated in Fig. 48, in which the arrows indicate the direction in which the drafts move, the goods moving, of course, in the opposite direction.

The Rate of Exchange. The *rate of exchange* of the currencies of two countries is the *actual market price* of each currency in terms of the other. Naturally, the bankers who sell foreign exchange make a charge for the accommodation; but this charge is paid willingly enough, since the use of foreign exchange makes it unnecessary to send gold overseas in settlement of indebtedness. The monetary unit of the United States is the dollar, and of England the pound

sterling. Americans, of course, wish to be paid in either dollars or gold, and Englishmen in either pounds or gold. There is no difficulty about this, however, since the English exporter is in reality paid by the London bank in money which this bank has received from English importers. It is therefore British money, or pounds sterling. A similar situation exists in the United States, for American exporters receive from their banks American dollars that have been paid in by American importers who require banker's bills with which to settle foreign obligations. This is true so long as exports and imports between two countries are equal.

There are times, however, when exports from the United States to England are either greater or less than imports from England. Let us suppose, for the moment, that they are greater. This means that American exporters are drawing from American banks more than American importers are paying in. In England, the situation is reversed; British importers, through their purchase of bills of exchange with which to pay obligations in America, are paying into English banks more than British exporters are drawing out, for British imports are greater than exports. If American exports exceed imports to a considerable extent, the quantity of London exchange for sale in New York (that is, bills of exchange payable in London in pounds sterling) increases, while at the same time (because of the relatively small imports) there is little call for these bills on the part of American importers.

Changes in Exchange Rates. Applying here the laws of price determination, which we have already explained in detail, we see that, because of the large quantity of London exchange offered for sale and the small quantity desired, the price must be low. London exchange in New York is said, under these circumstances, to be "at a discount," that is, it will sell below par. Moving quickly to England and viewing the situation from that angle, we find that there are many British importers anxious to buy New York exchange with which to pay American exporters. But New York exchange is scarce in London because there has been little exporting to the United States. As a consequence, New York exchange in London will sell "at a premium," or above par.

We can find the *par of exchange* by comparing the gold content of, say, the dollar and the pound sterling; for the par of exchange of the currencies of two countries, both of which are on the gold standard, is the ratio of the *gold contents* of these two currencies,

expressed in monetary terms. A British pound sterling commands \$4.8665 in gold when it contains (as in 1931) 4.8665 times as much pure gold as the dollar. When exports and imports are at par (that is, exactly equal in value), the *rate of exchange* between dollars and pounds will also be at par, and the American importer can purchase bills of exchange payable in London in pounds sterling, on the basis of \$4.8665 per pound, plus the dealer's commission.

But if exports from the United States to England are greater than imports, he will be able to buy London exchange at less than par, perhaps at \$4.85 per pound sterling. At this same instant, the British importer in London, seeking to purchase foreign exchange payable in New York in dollars, will discover that he must pay more than par for a bill of exchange, that is, for each pound sterling he will receive only \$4.85 worth of American dollars.

It should now be clear that an excess of American imports over exports will reverse the situation, and London exchange will, in New York, sell at a premium (say, at \$4.88 per pound), while New York exchange in London will sell at a discount; that is, a pound sterling will buy more than a normal amount of dollar purchasing power—\$4.88 worth, to be exact. The problem, then, is one of supply and demand. The price of foreign exchange is low when there is an abundance of it available, and the price is high when bills of exchange are relatively scarce.

"Gold Shipping Points." There are, however, heights and depths beyond which the price will not go. These are known as the "gold shipping points," and they represent deviations from par beyond which it will pay the importer to ship gold in payment of his foreign obligations. If the shipping costs of a pound sterling between New York and London (covering transportation, insurance, and all handling charges) are, say, two cents, then the American importer will refuse to buy London exchange if the price goes above \$4.8865, since it would be cheaper to ship gold than to pay a higher price for bills of exchange. Similarly, American exporters, in selling to American bankers their claims upon British importers, will not take less than \$4.8465 per pound sterling, for it would be more advantageous to have gold shipped from England in settlement of their claims than to sell the claims at a figure smaller than the amount mentioned. When there are no obstacles to the free movement of gold, the rate of exchange is ordinarily held between these upper and lower gold shipping points. In actual practice, gold shipments are

made not by importers who have obligations to meet, but by bankers who thus increase their balances abroad and then sell foreign drafts against these balances. However, the fact that importers *could* pay their bills by shipping gold prevents the rate of exchange from going beyond the gold shipping point.

FOREIGN EXCHANGE BASED ON PURCHASING-POWER PARITY

Thus far, we have been considering foreign exchange between countries that are on the gold standard. But nearly all of the countries that play important rôles in international trade have abandoned the gold standard, and there is no longer a free movement of gold between them. If two countries, one on a gold and the other on a paper standard, engage in trade, the exchange rates will no longer be anchored to the gold parity and may deviate widely from such parity. This is true because the departure from the gold standard eliminates the possibility of free gold movements. The statement holds also for trade between two countries both of which have departed from the gold standard. Because the exchange rates lose their connection with a gold parity, it does not follow that there is no parity, or "norm," about which the actual exchange rates will tend to fluctuate. Indeed, there is such a norm, which we call "purchasing-power parity," and which means that the parity of exchange is based upon the purchasing power, and not upon the gold content, of money. We may define the *par of exchange* of the currencies of two countries that are not on a common metallic monetary standard as the ratio of the *purchasing powers* of these two currencies in their respective countries of issue.

Purchasing-power parity therefore is a ratio which expresses the relationship between the price levels of the two countries under consideration. It must be thought of as an *ideal* ratio, just as the gold parity of £1 = \$4.87 is an ideal ratio. But just as the *actual* rates of exchange frequently vary from the ideal when both countries are on the gold standard, so also may actual rates of exchange vary from purchasing-power parity when the trading countries have left the gold standard. As these lines are written, the pound is quoted at \$4.03. This is, of course, the *rate of exchange* at this particular time, and not necessarily the *par of exchange*.

Purchasing-Power Parity and Domestic Price Levels. When both England and the United States were still on the gold standard and the gold parity of £1 = \$4.87 was in actual force, this expression

of the parity of exchange could be taken literally. *For £1 was a given quantity of gold, and \$4.87 was precisely the same quantity of gold.* When international trade was transacted upon this basis of exchange, what happened was that a quantity of economic goods valued in England at approximately 125 grains of gold nine-tenths fine¹ (£1) was sent to the United States in exchange for a quantity of economic goods valued in America at 125 grains of gold (\$4.87). Thus goods exchanged for goods, as they always must in international trade, either immediately or eventually. The ratio at which they exchanged was determined by the relationship between the *purchasing power of gold in England and in the United States*. Under purchasing-power parity, the ratio at which English and American goods exchange is likewise determined by the *relationship between the domestic price levels*—expressed now, however, not in terms of gold but in paper pounds and dollars, respectively. With both England and the United States on a paper monetary basis, the statement that £1 = \$4.03 means that the purchasing power of the paper pound in England is approximately the same as the purchasing power of \$4.03 (paper) in the United States. This exchange rate, then, is based upon the relation between the domestic purchasing powers of the two national currency units.

There is nothing surprising about the parity of exchange being based upon the purchasing power of money in the countries that issue it, for eventually the money must be spent in the countries of issue, if it is to be spent at all. Paper pounds are generally acceptable in England but not in the United States, and paper dollars in the United States but not in England. Hence, pounds must be spent in England and dollars in the United States. It follows that the value of the pound and the dollar must depend, in the final analysis, upon what they will buy in England and the United States, respectively. Let us suppose that these two countries, both being on a paper money basis, engage in international trade, that all the commodities and services purchased by the people of England in the United States are paid for in paper pounds, and that all goods bought by Americans in England are paid for in paper dollars. It is obvious that trade could not stop at this point, since dollars in England and pounds in America lack general acceptability and are therefore but

¹ In the interests of strict accuracy, it may be noted that British gold used for monetary purposes is eleven-twelfths fine, while American monetary gold is nine-tenths fine.

slightly useful. To be used to greatest advantage they must be returned to the country of issue and spent there for economic goods, and their usefulness will be measured by the quantity of goods they command in that country.

Speculation in Foreign Exchange. It should be noted, further, that speculation may enter into a situation such as we have described. If, for example, it appeared likely that we should soon have a rise in the price level of the United States without a corresponding rise in England, there would be a rush to convert dollars into pounds, in anticipation of the loss of purchasing power that dollars would suffer through an increase in general prices in the United States. This increased demand for pounds would alter the ratio of exchange, which might be expected to move to £1 = \$4.25, or to some other ratio indicating the enhanced value of the pound as compared with dollars. If a decline in the American price level were expected, with no change in general prices in England, we may be sure that Britishers would seek to buy up dollars while they were still relatively cheap. Their bids for dollar exchange would have the effect of raising the price of drafts payable in dollars, with the result that the number of cents obtainable for a pound would begin to move downward from the present 403, and might eventually get as low as (say) 375, when the rate of exchange would be £1 = \$3.75. If, on the other hand, the present *nominal gold parity* of £1 = \$8.24 were expected to come into force, there would be an immediate scramble to buy pounds while they were still available at \$4.03 in American paper money; and this scramble would cause the "\$4.03" of the present paper ratio to move in the direction of the \$8.24 which the pound would cost once the new gold parity had been adopted.

Speculation takes place also in the foreign exchange of countries that are firmly established on the gold standard and make no effort to prevent the shipment of gold. Dealers in exchange, like dealers in any other commodity, will buy in anticipation of a rise and sell in anticipation of a decline in price. Consequently, there are always some people buying foreign drafts because they expect an increase in demand which will enable them to reap a profit, and others selling because they look for a decline in demand which would render their holdings less valuable than they are at present. However, the exchange rates of paper currencies offer a wider scope for speculative operations than the rates of gold standard currencies; for the-

latter, it will be recalled, can vary only between the gold shipping points, whereas the former are likely to fluctuate more widely.

THE BALANCE OF INTERNATIONAL PAYMENTS

“Favorable” and “Unfavorable” Balances of Trade. We have yet to consider the contention that the exports and imports of a country tend to be equal, and to examine briefly the mechanism which brings about the equilibrium between exports and imports. In this connection, we shall find it convenient to make use of two terms which are met with continually in the literature of international trade. For many decades, economists have been writing about “favorable” and “unfavorable” balances of trade. Indeed, the terms originated at a time when it was considered decidedly advantageous for a nation to send abroad more goods than it imported, so that it might receive gold in payment of the balance. Of more recent years we have come to a realization that the acquisition of a very large quantity of gold is not necessarily a great blessing, but may bring about distinctly unpleasant consequences through its effects upon the credit-currency systems and the price levels of the countries sending and receiving the gold. Consequently, the terms “favorable” and “unfavorable,” when used in connection with an international trade balance, are likely to be misunderstood. It would certainly be clearer to refer to an “excess of exports” or an “excess of imports”; but the other expressions have become so firmly fixed in our economic language that there seems to be small hope of ousting them.

The Long-Run Equalization of Trade. To many people, international trade appears to consist primarily of exports and imports of merchandise and services of the types listed in Items 1 to 8 of Table 81. Before the era of large-scale foreign investments, these were, of course, the items of greatest importance; and it was a commonplace among writers on economics that what a country exported in the way of such goods tended to equal its imports of these kinds. Even today, when long-term investments and changes in international banking accounts form an appreciable part of a country's exports and imports, it should be obvious that, although such *claims upon economic goods* may be acceptable temporarily in exchange for economic goods, yet they are acceptable only in the sense that they constitute deferred payments; and sooner or later the holders of these claims will expect to convert them into commodities and services.

If, then, a country—say, the United States—maintains a “favorable” trade balance by exporting year by year more economic goods than it imports, and receiving in exchange for its excess of exports such claims upon foreigners as are represented by stocks and bonds, we may be sure that there will come a day of reckoning when the holders of these claims will call for payment. The direction of trade will then have to be reversed, for payment must eventually be made, if it is made at all, in economic goods. Moreover, payment will involve an *excess* of imports over exports, and the United States will then have a so-called “unfavorable” balance of trade. This is one more illustration of the fact that trade consists, at least in the long run, of an exchange of commodities and services for commodities and services.

Maintenance of Goods Balance Under the Gold Standard. The length of time required to balance exports and imports of economic goods cannot, of course, be predicted with anything approaching accuracy, but we may inquire into the method of bringing about this equilibrium. Let us suppose, for the sake of simplicity in explanation, that all international trade consists of economic goods, neglecting for the moment such items as long-term investments and changes in international banking accounts. Let us suppose, further, that the countries that engage in trade are all on the gold standard.

It is safe to say that people ordinarily buy in their own communities, and certainly in their own countries, unless there is an advantage to be had through purchasing in a more distant region. If, for example, Englishmen import goods from the United States, they do so because they can buy here to greater advantage than at home. This would mean, in all probability, that certain commodities and services were obtainable at lower prices in the United States than in England. Otherwise there would be no incentive to buy at so great a distance. Therefore, if American exports of economic goods should continuously be greater than imports, we should expect to find the cause in the low prices which prevail in the United States for the goods desired by foreigners, and the high prices in other countries for goods which might be purchased by Americans except for the fact that they can secure them for less right at home. But if the United States continued for a long time to have larger exports than imports, the balances year by year would be paid in gold; and this gold might be expected to increase the quantity of circulating media in the United States and thus raise the price level.

An increase in general prices would eventually make itself felt in international trade. For not only goods that are sold at home, but those entering into international trade as well, would advance in price; and, in the course of years, these goods would be offered only at figures which were prohibitive, so far as foreign purchasers were concerned. For just as the influx of gold to the United States would raise prices, so also its flow from other countries would lower their price levels; and thus it would become increasingly difficult for American business men to quote prices that would induce foreigners to buy in the United States instead of at home. Indeed, we might expect prices in foreign countries to decline so greatly that American purchasers would be attracted, and as a consequence American imports for a time might exceed American exports. We have, then, in the movement of gold a device which tends to bring about an equilibrium between exports and imports of commodities and services. If the balance is upset to a very considerable extent, so that the rate of exchange comes close to the gold shipping point, a movement of gold takes place which in time may be counted upon to restore the equilibrium once more.

Equilibrium of All Payments Under the Gold Standard. Having seen how exports and imports are balanced under the relatively simple conditions which we assumed to exist, we may now introduce the capital movements which are included in Table 31 under Items 9, 10, 11, and 12. Paper currency movements, listed as Item 15, are similar in character to these several capital items, since paper money is in reality a credit instrument. Item 16 consists of a host of things which, if we knew perfectly all details of the situation, could be distributed elsewhere in the table; and silver (Item 14) may be regarded as merchandise. Thus we can include among exports and imports every item in Table 31, with the single exception of gold; and gold, it should be observed, is customarily regarded purely as a means of settling balances in international trade, when the nations engaging in trade are on the gold standard, as they are under our assumed conditions. If, then, our international balance sheet were the one appearing as Table 31, we should find that (apart from gold shipped) the exports of *all items* (or credits) amounted to \$8,779,000,000, and the imports of *all items* (or debits), to \$4,035,000,000, requiring a net gold import of \$4,744,000,000 to bring the two into equilibrium. The gold transferred in 1940 represents, as

we have explained, a far larger percentage of the total volume of transactions than in normal years.

Obstacles to the Automatic Attainment of Equilibrium. This shipment of gold, like the shipment mentioned in an earlier paragraph, might be expected to raise somewhat the price level of the country receiving it—the United States—and to depress somewhat the price levels of the countries losing it, thus tending to bring about a readjustment of trade which would bring exports and imports into balance. However, we cannot be certain that gold entering a country may not be "sterilized" (that is, kept by the central banking system from forming the basis of credit expansion), and thus be prevented from raising the price level. And it is also possible that the country losing gold may liberalize its policy of credit extension so as to keep the loss of gold from depressing its level of general prices. In the face of such credit manipulation, the readjustment to which we have referred might not take place promptly. However, it would not be possible to continue the shipment of gold in one direction indefinitely, without forcing off the gold standard the country whose stock of gold was being depleted. And once it had abandoned the gold standard, the value of its paper currency would soon fall and the direction of trade would be reversed. This statement does not apply to *gold-producing countries* which mine and refine year by year enough gold to enable them to meet unfavorable trade balances in gold without drawing upon the stocks of bullion needed for the support of their monetary and banking systems.

The Influence of Changes in Rates of Exchange. At this point we must emphasize the fact that the forces making for an equilibrium of exports and imports are at work all the time, and do not become active merely when the rate of exchange has reached the gold shipping point. It will be remembered that international payments are usually made through the medium of bills of exchange, and that a favorable balance of trade for the United States requires the people of other countries who are importing American goods to pay a premium when they buy dollar exchange, since the demand is great and the quantity available is relatively small. At this same time, and for the same reason, foreign drafts will sell at a discount in New York. For example, the discrepancy between exports and imports might be so great that dollar exchange would sell in London at as high a price as £1 = \$4.85. This high price charged for the means of making payments for American goods would in itself have

a depressing effect upon exports from the United States to England, and the low price of sterling exchange in New York would stimulate imports from England to this country. It is evident, then, that fluctuations in the rate of foreign exchange tend to bring trade balances into equilibrium, and that the shipment of gold in settlement of balances takes place only after the rate of exchange has moved so far from gold parity as to reach the gold shipping point.

The Handling of Gold Shipments. It will be well also to explain more fully the statement, already made, that movements of gold, when they occur, are not handled by the importers of goods. This service is ordinarily performed by dealers in foreign exchange who, when the gold shipping point is reached, make a shipment of gold themselves and thus build up foreign balances against which they may write foreign drafts and sell them to those who must pay bills in foreign countries. On such drafts the dealers in exchange will naturally charge a premium which will reimburse them fully for the cost of shipping the gold, and yet will not make the total cost to the buyer higher than the cost which would be entailed if he undertook to pay his foreign obligations by shipping gold himself. Furthermore, if there is a probability that gold will soon move in the opposite direction, the additions to foreign balances referred to above may be made through a credit transaction instead of a gold shipment, since it would obviously be silly to send gold to England only to have it promptly returned. Credit transactions of this kind appear in the international balance sheet as changes in international banking accounts (Item 10 in Table 31).

Maintenance of the Trade Balance Under Purchasing-Power Parity. When countries engaging in international trade are not on the gold standard, any shipment of gold that takes place is regarded as a merchandise transaction and not as a means of balancing exports and imports. Under purchasing-power parity, the balance of payments is maintained wholly through fluctuations in the rate of exchange. But whereas, under a gold standard, the fluctuations cannot go beyond the gold shipping points but give way at these points to the shipment of gold as a force making for equilibrium, under purchasing-power parity they know no definite limits and will extend as far as may be necessary to effect a balance between total exports and total imports. If we assume, for example, that with England and the United States on a paper monetary basis the *normal* rate of exchange (that is, the *par of exchange*) is £1 = \$4.03, we can

readily see that a favorable balance of trade for the United States would, as in our gold standard illustration given above, place a premium upon dollar exchange in England. This premium, as we have explained, would tend to turn the tide of trade; if it did not succeed in so doing, a still higher premium would be charged, and the price of dollar exchange would continue to rise until exports from the United States were sufficiently discouraged and imports to the United States were correspondingly encouraged. There can be no question that a long-continued rise in the price of dollar exchange, and a consequent decline in sterling and other foreign exchange, would finally bring about an equilibrium between exports and imports.

The *par of exchange* (gold parity) of the currencies of two countries, both of which are on the gold standard, is the ratio of the *gold contents* of these two currencies, expressed in monetary terms.

The *par of exchange* (purchasing-power parity) of the currencies of two countries that are not on a common metallic monetary standard is the ratio of the *purchasing powers* of these two currencies in their respective countries of issue.

The *rate of exchange* of the currencies of two countries is the *actual market price* of each currency in terms of the other.

1. Why is gold generally acceptable in international trade transactions, whereas paper money is not?
2. To what extent was gold used in the settlement of international payments in 1940 (Table 31)?
3. Why do we wish to avoid the use of gold in making international payments?
4. What device used in our modern "clearing houses" is utilized for reducing materially the necessity of shipping gold for the settlement of international obligations?
5. Show, with an illustration, how several international business transactions might be "settled" without the shipment of gold, and also without the assistance of dealers in foreign exchange.
6. What are the difficulties involved in a settlement of this kind?
7. Introduce dealers in foreign exchange into the illustration used in your answer to Question 6, and trace the operations that must be gone through before the settlement is completed.
8. How do dealers in foreign exchange build up "foreign balances," and how are these balances reduced from time to time?
9. Why is it sometimes desirable to employ "triangular exchange"?

10. Follow, step by step, the transactions outlined in Fig. 47. Is this process, in basic principle, different from that shown graphically in Fig. 46?
11. Indicate the manner in which the use of foreign exchange enables a creditor to receive payment in the money of his own country.
12. Define "parity of exchange."
13. Under what conditions will foreign exchange sell "above par"? "Below par"? Are your answers consistent with the statement that the problem of exchange rates "is one of supply and demand"?
14. What are "gold shipping points"? Why do rates of foreign exchange tend to remain within these limits?
15. Explain the meaning of "purchasing-power parity."
16. Under what condition is parity of exchange based on purchasing power instead of on the gold content of money?
17. What is a "favorable" trade balance? An "unfavorable" trade balance?
18. Is a favorable trade balance necessarily desirable, and an unfavorable trade balance undesirable?
19. Does the statement that "there is a tendency for exports to equal imports" relate to merchandise alone, or to other items as well?
20. How do you explain the fact that foreigners sometimes buy goods in the United States, when similar goods are made and sold in their own countries?
21. Why would it be undesirable for a country to attempt to maintain a "favorable" trade balance indefinitely?
22. What have price levels to do with the maintenance of trade balances?

REFERENCES FOR FURTHER READING

See list of references at the end of Chapter 23.

25. *The Distribution of Income*

*W*e now enter upon the study of another major division of the science of economics. We have examined at considerable length the production and exchange of economic goods. Our next step is to inquire into the distribution (or apportionment or division) of these economic goods among the members of society. In the present section (covering five chapters), we examine the payments that are made to owners of land, labor, and capital who allow these agents of production to be used in the economic process, and to the owners of the business enterprises in which these agents are employed.

THE NATURE OF DISTRIBUTION

Many writers on economics have described distribution by imagining a central point to which all members of an economic group come from time to time and deposit in a "goods heap" the commodities and services which they have produced and for which they desire credit. As evidence of his contribution, each producer may be supposed to receive a certificate which will enable him, at his convenience, to draw from the goods heap commodities and services up to the amount of his deposit. In a great economic area, such as the United States, there might be piled up in a year of normal prosperity a goods heap amounting in value to some \$150,000,000,000, and presumably there would be withdrawn from this heap an equal amount of economic goods.

The Participants in Distribution. Who is it that takes part in the process of distribution? Obviously those who contribute, directly or indirectly, to the accumulation of commodities and services will expect to participate in their distribution. And to what extent does each producer share in the distribution of these goods, which in a given country may quite properly be called the national income? In general, to the extent of his importance in the task of producing the national income. For each depositor will insist on having as his share

of the goods an amount no smaller than would be lost if he withheld his productive efforts; and if competition exists, there is no reason to suppose that he need take less.

To be sure, the producer will not get in return the exact items that have formed his contribution. For as producer and depositor he is a specialist, placing upon the heap, in all probability, but one kind of economic goods; but as a claimant, cashing in on his certificates of deposit, he sees the situation from the consumer's point of view and demands a great variety of goods. Nevertheless, he will hope in all cases to receive *as great value* in commodities and services as he has contributed to the national goods heap.

The Size of the "Goods Heap." Our study of production has shown that there are four factors, or agents of production, though each of the four is capable of being divided into some hundreds or thousands of grades. The size of the goods heap, then, depends upon the productive efficiency of land, labor, capital, and business enterprise. If these factors of production are abundant and of high quality, and if they are properly combined and set to work, we expect to see, and do see, a large accumulation of economic goods over a period of time, say a year. The United States is an outstanding example. If one or more of the productive agents are scarce or of inferior grade, or if they are not used in the proper proportions, the national heap will be smaller. Italy, with extremely meager natural resources and a disproportionate quantity of labor, is a case in point.

But in all capitalistic societies the four factors are found at work, each contributing something to production; and in all such countries landlords, laborers, capitalists, and business enterprisers demand their respective shares of the national income in the form of rent, wages, interest, and profits. It is the division of income into shares for the owners of the various productive agents that constitutes distribution, as the term is ordinarily employed by economists.

The Relation of Distribution to Price. In our examination of price determination we saw that the competitive price of an economic good, in the long run, tends to equal the costs involved in producing it; and that these costs of production, in turn, consist of the sum total of the prices that must be paid for the use of the factors employed in the production of the good. These productive factors, though of many types and grades, may be resolved into land, labor, capital, and business enterprise. If we take as a starting

point the four agents of production, we arrive at price by simply totaling these payments; and if we begin with price, distribution consists of dividing price into the parts of which it is composed—that is, into the payments demanded by owners of the several factors of production.

We see, then, the close relationship between price and distribution. Indeed, they are (as has often been suggested by economists) but different aspects of the same thing. Price, or the payment made for an economic good, is merely the sum of the prices paid for the use of the several productive agents that were employed in producing it, the price of the good and the prices of the agents being determined simultaneously. It is upon the prices paid for the productive agents that we center our attention in making a study of distribution.

We have seen that the price of a good is determined by the conditions of supply and demand, price being set at that figure at which buyers are willing to buy exactly the quantity that sellers stand ready to sell. The payment for a productive agent (that is, the price that is paid for its use) is determined in precisely the same way. Hence, the share that the owner of a productive agent has in the distribution of income depends upon the relation between the supply of and the demand for this agent. The price at which the owners of a given agent are willing to give up the same quantity enterprisers are willing to buy is the price that will be paid. It is clear, therefore, that the study of distribution is simply a continuation of the study of price determination, and it is pursued (as was true also of price) through an examination of the factors affecting the conditions of supply and demand.

MARGINAL PRODUCTIVITY AND DISTRIBUTION

The Concept of Marginal Productivity. In the analysis of distribution an attempt is made to find an answer to the question, "How are rent, wages, interest, and profits determined; that is, on what basis is income distributed among the owners of the productive agents?" We have already answered this question in a general way by suggesting that each contributor to the national heap of goods withdraws from the goods heap an amount of economic goods that is proportional to his importance as a producer. This is the central idea of a popular theory, the Marginal Productivity Theory of Distribution, which states that the share of each of the productive agents

is determined by the *marginal productivity* of that agent. In the present analysis we do not hold to this theory; that is, we shall not suggest that the amount paid for the use of a unit of a productive agent is *determined* by the marginal productivity of the agent. Indeed, we have already said that it is always determined by the conditions of supply and demand. It will be seen, however, that marginal productivity plays a vital part in affecting distribution *on the side of demand*, and that there is a tendency for competitive price to *equal* marginal productivity. But this is only one side of the story. The theory of distribution is not complete until due recognition has been given to the supply of the productive agent, as well as to demand.

TABLE 35. EFFECTS OF BONE MEAL UPON THE YIELD OF WHEAT IN SOUTHEASTERN KANSAS^a

Varying Quantities of Bone Meal (capital)	Total Product (bushels)	Marginal Product (bushels)	Value of Marginal Product at		
			\$1.00	\$1.20	\$1.40
No bone meal used.....	10.6	...	...	...	...
1 unit (total 30 lbs.) used.....	14.9	.43	\$4.30	\$5.16	\$6.02
2 units (total 60 lbs.) used.....	17.3	.24	2.40	2.88	3.36
3 units (total 90 lbs.) used.....	18.7	.14	1.40	1.68	1.96
4 units (total 120 lbs.) used.....	19.5	.08	.80	.96	1.12
5 units (total 150 lbs.) used.....	19.9	.04	.40	.48	.56
6 units (total 180 lbs.) used.....	20.2	.03	.30	.36	.42

^aSource: United States Department of Agriculture.

In speaking of marginal productivity we shall have reference to the *value* of the marginal product. The marginal product is the amount of product that is dependent upon the use of a single unit of a given amount of productive agent. This single unit of any quantity of a productive agent is called the marginal unit, as will be made clear in the next paragraph.

Let us refer again to a table which we used in Chapter 5, and which, for convenience, is reproduced here as Table 35. According to this table, the use of 6 units of bone meal in connection with the other factors of production would bring a total product of 20.2 bushels of wheat, the marginal product being .3 bushel. This marginal product is the difference between the total product when 5 units of bone meal are used and the total product when 6 units are used. The value of this marginal product, or its marginal productiv-

ity, would depend upon the price at which wheat could be sold. Hence, the value of this particular marginal product would be 30 cents, 36 cents, or 42 cents, depending upon whether the selling price of wheat was \$1.00, \$1.20, or \$1.40 per bushel, respectively. The sixth unit of bone meal in our illustration is said to be the marginal unit of bone meal, and the marginal unit is sometimes defined as the *last* unit to be employed. But the word "last" refers here to *quantity* and not to *time*. All units of bone meal must be thought of as being employed at the same time. The expression "the last unit" (or "the marginal unit") has to do only with the quantity of the productive factor in question—in the part of Table 35 that we are now examining, with *the difference between 5 and 6 units of bone meal*. This, as we shall see shortly, is not the same thing as the difference between 2 and 3 units, for it matters greatly, in applying the concept of marginal productivity, whether the marginal unit is one of many units of the factor, or one of few. Since all units of bone meal are (by hypothesis) precisely alike, the marginal unit is *any one* of the 6 units. The marginal product of this agent, bone meal, is the quantity of product that is added to the total product through the use of the marginal unit of bone meal, it being assumed that the quantities of the other productive agents remain unchanged.

Marginal Productivity and the Law of Variable Proportions. It is important to emphasize the fact that the marginal unit is one unit of a *total quantity* of a given productive agent, for the productivity of the marginal unit of any factor depends upon the number of units that are being used. The productivity of the marginal unit of bone meal when 6 units are employed is a quite different thing from its productivity when only 3 units are used, if we assume that labor, capital, and business enterprise are the same in both instances. Reference to Table 35 shows that the marginal product is 1.4 bushels of wheat when 3 units of bone meal are employed, as against .3 bushel when 6 units are employed. From the Law of Variable Proportions¹ we learned that all of the factors of production are subject to the principle of diminishing returns; that if progressively larger quantities of any factor (whether of land, labor, capital, or business ability) should be combined with a fixed quantity of the other factors, diminishing returns would eventually result. Though the total product would increase with each addition of the variable factor, the product dependent upon the use of the added unit of the variable factor

¹ See chap. 5.

would be smaller than the product dependent upon the use of the preceding unit of the variable factor, once the point of diminishing returns had been reached.

In our earlier treatment of this principle, we remarked that it is often referred to as the Law of Diminishing Productivity. This name is especially appropriate in the present connection, for it suggests, and quite properly, that if we assume more and more units of one factor to be used, without an increase in the quantities of the other factors, the marginal product of the variable factor would diminish progressively. Thus, if 3 units only of bone meal should be used in conjunction with a *given quantity* of other factors, the marginal product of bone meal (that is, the amount of product added to total product through the use of the *third*, or "last," unit of bone meal) would be greater than it would have been if 6 units of bone meal had been used, in which case the marginal product would have been the amount of product added to the total through the use of the *sixth* unit of bone meal. We see here the importance of the supply side of our theory of distribution, for the marginal product is smaller when the agent in question is employed freely than when it is sparingly used. Whether many or few units of the agent in question are employed, it is the marginal productivity (that is, the *value* of the marginal product of the agent) rather than the product itself with which we are concerned in our discussion of distribution.

MARGINAL PRODUCTIVITY UNDER COMPETITIVE CONDITIONS

The Demand for and Supply of the Productive Agents. Since the production of economic goods is dependent upon the use of land, labor, capital, and business enterprise, and since these agents of production exist in limited quantities, it is possible for those in possession of the agents to obtain payment for their use, under a régime of private property. The amount of payment will depend in each case upon the importance of the agent when employed in a productive capacity.

The degree of economic importance, or marginal productivity, of an agent is related to its scarcity, as we have already seen. If it is available in large quantities and the demand is small, it will be poorly paid because it is but slightly useful in production. If it is extremely limited in quantity and is essential in the making of a good for which the demand is great, it will command a high price. But the price, whether high or low, will under competition bear a direct

relationship to the marginal productivity of the agent, and the marginal productivity will depend upon the conditions of both supply and demand. The marginal productivity of a productive agent is great or small, depending upon whether the quantity available is relatively scarce or plentiful.

Demand and supply schedules and demand and supply curves may be drawn up and used quite as readily and satisfactorily in ascertaining the price of a productive agent as in determining the price of a finished good. Whether the agent in question is a particular type and grade of land, or labor, or capital, its price is determined by the relationship between the demand for and supply of the agent, that is, by an equilibrium between the supply of and demand for the agent. It is the general conditions of supply and demand that determine which unit is to be the marginal unit, and it is the value of the product of this unit that tends to equal (but does not itself determine) the price paid for the use of every unit of the agent. The principle of marginal productivity explains why enterprisers will pay as much as they do for a productive agent—that is, it explains the *demand* side of the equilibrium.

The extent to which a business man will employ a given productive agent depends upon the price he must pay for it, in relation to the price he can obtain for the additional product which results from the use of the agent. Clearly, the careful enterpriser will not continue to employ any factor of production beyond the point of most profitable use.² But, equally clearly, he will not under competition cease to add units of a productive factor so long as he can secure for the additional product which results from their use a price that is more than enough to pay for the extra units.

The Price of the Marginal Unit. Table 35 shows the extent to which, in the illustration there given, the enterpriser would employ a particular kind of capital, bone meal, in the production of wheat. With wheat selling at \$1.00 a bushel, and bone meal at 75 cents a unit, he would use up to, but not beyond, 4 units; for the fourth unit would increase the total product sufficiently to bring in 80 cents of additional return, whereas the outlay for this unit of capital would be 75 cents.

Theoretically, at least, it would be possible to make the units of an agent so small that there could and would be virtual equality between the value added to total product through the use of the

² See chap. 5.

marginal unit and the price paid for that unit. For there is no reason to suppose that enterprisers would cease to add units so long as the necessary payment for these units was even slightly less than the price received for the extra product. Hence, units would be added until the equality we have spoken of had been attained. It is customary, therefore, to say that the price paid for a productive agent tends to equal the full value of its marginal product; that is, every unit of the agent will command as much as every other unit, and this amount tends to be the value of the product of the marginal unit. But whether this amount is high or low will depend upon the general conditions of supply and demand as they relate to this particular productive agent.

The Price of an Agent in Its Alternative Uses. Not only will all units of a productive factor receive the same price in a given establishment and in the same type of industry, but the total quantity of the factor, if it can be used in many branches of economic activity, must be paid for at a uniform rate, no matter by whom or in what manner it happens to be employed. The principle of opportunity costs brings about this equalization in the unit price of every productive agent that has alternative uses. We saw in our examination of individual prices that a given grade of agricultural labor, which could be used in either cotton or corn production, would not be available for cotton growers at a lower price than that offered by corn growers, and vice versa. Therefore, no enterpriser (whatever his line of production may be) can secure the use of a productive agent at a lower figure than any other enterpriser will pay. But since all enterprisers who use the agent tend to use more and more units up to the point at which the cost of the final unit is just equal to the value of the additional product, we see that not only is there, in a competitive market, a uniform price for a productive agent throughout industry, but this price is uniform because there is a uniform marginal productivity for a productive agent throughout industry as a whole.

The Interdependence of the Productive Agents. If by any mischance we have given the impression that the various agents are productive separately and individually, it is high time to correct the misunderstanding, for it is but seldom true that a given agent, alone and unaided, is productive. In our illustration of wheat growing, we saw that the addition of a fourth unit of bone meal brought an additional product of eight-tenths of a bushel of grain. But it would

be wrong to say that the extra unit of fertilizer "produced" the additional wheat. It had a share in the production, to be sure, but so also had the other kinds of capital and the land, labor, and business enterprise that were employed in this agricultural project. Just as it is impossible in the case of joint supply to determine the separate costs of the goods jointly produced, so in production of any kind it is impossible to separate the total product into shares and assign to each of the agents those units of product which each has produced. For the process is, after all, one of joint production, and each agent has had a part in producing each unit of the total product.

What can be done, however, is to ascertain the usefulness of the marginal unit of an agent by withdrawing a single unit temporarily and noting the loss in total product that results. When we have learned the amount of loss caused through the withdrawal of the marginal unit of a productive factor we know how much can be paid for each units of the factor, and, moreover, how much *will* be paid for it, under conditions of perfect competition. This amount, it may be repeated, is determined by general conditions of supply and demand. Adding together all payments of this kind made to all factors used in producing a good, we get the total costs of production, which, under competition and in the long run, tend to equal the price of the good.

The Individual Enterpriser and Marginal Productivity. It must not be supposed that the average enterpriser makes a practice of calculating the marginal productivity of land, labor, and capital in the detailed manner we have just described, and thus determining the rates of rent, wages, and interest he will pay. It is the *consensus* of enterprisers in general, rather than the opinion of any individual enterpriser, that decides, in a given market at a given time, how much will be paid for a given grade of a productive agent—say, for the labor of a skilled mechanic.

The business man who needs such workers pays the market wage for this labor, purchasing the quantity he feels he can use advantageously at the prevailing wage. That quantity is, under competition, the amount which will have a marginal productivity equal to the wage that this type of labor is currently commanding. By hiring or refusing to hire workers, or by hiring few or many, the individual business man registers his judgment that the wage is or is not too high, but has himself no appreciable effect upon the situation. However, the actions of hundreds or thousands of enterprisers using a

given type of productive agent *do* have an appreciable effect, and result in the distribution of the agent throughout the field on the basis of opportunity costs, as was described in Chapter 5.

MARGINAL PRODUCTIVITY UNDER NON-COMPETITIVE CONDITIONS

Thus far in our discussion of marginal productivity we have assumed that enterprisers who sell their products under competitive conditions have been dealing with competitive sellers of productive agents; and we reached the conclusion that, under these conditions, the price paid for the use of a given productive agent tends to equal the marginal productivity of that agent.

This conclusion holds good, however, only for strictly competitive situations. Our study of price determination showed us that enterprisers who sell their products under conditions of monopoly, partial monopoly, or imperfect competition are able to secure a gain which would not be available under competition. This gain arises from the fact that these non-competitors sell goods at prices higher than their costs of production—that is, at prices higher than the sum of the amounts they pay to owners of the land, labor, and capital they have employed in making these goods. This is just another way of saying that these producers (because they have limited their output, and thus hampered to some extent the operation of the principle of diminishing productivity) have not had to pay the owners of the productive agents as much as the full marginal productivity of these agents.

It is evident, then, that the price and the marginal productivity of an agent of production do *not* tend to equality when the agent goes into the production of goods sold under conditions of monopoly, partial monopoly, or imperfect competition. Nor do price and marginal productivity tend to be equal when the productive agent itself is sold under any of these three non-competitive conditions.³ Indeed, the usefulness of marginal productivity as a *strict* measure of rent, wages, and interest is limited to the field of competition. But as an *approximate* measure it has a much wider field of usefulness, as we shall hope to make clear in the following four chapters.

³ This phase of the subject is particularly well treated in J. E. Meade and C. J. Hitch, *An Introduction to Economic Analysis and Policy*, New York, Oxford University Press, 1938, pp. 151-158.

Distribution is the apportionment or division, among the owners of the agents of production, of the economic goods produced by society.

Marginal product is the amount of product that is dependent upon the use of a single unit of a given productive agent employed in connection with quantities of other factors that remain unchanged.

Marginal productivity is the value of the marginal product.

1. Define "distribution."
2. Give a synonym for "distribution."
3. Who are the sharers in distribution?
4. Why does the United States have a large national income *per capita* and Italy a small one?
5. What is the relationship between price and distribution?
6. We frequently use the term "marginal productivity." What is the significance of the word "marginal" in this connection?
7. Is the amount paid for the use of a productive agent determined by the marginal productivity of the agent, or is it not? Explain.
8. Distinguish between marginal product and marginal productivity.
9. The marginal unit of a productive factor is said to be the last unit of that factor to be employed. Show that the word *last* refers to *quantity* and not to *time*.
10. Of what significance is the Law of Diminishing Productivity in connection with the consideration of marginal productivity?
11. Up to what point will it pay an enterpriser to keep adding to his business further units of a given productive agent?
12. What is the "marginal unit" of a factor of production?
13. It is customary to say that the price paid for a productive agent tends to equal the full value of its marginal product. Why should this be true?
14. What is it that determines whether the amount paid for the marginal unit is high or low?
15. It is said that the productive agents used in the making of a commodity are *interdependent* and not *independent*. What is the significance of this statement?
16. Discuss *marginal productivity* as a measure of rent, wages, and interest, under both competitive and non-competitive conditions.

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- MARSHALL, ALFRED, *Principles of Economics*, London, Macmillan & Co., Ltd., 8th ed., 1930.
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26. Rent

We shall now consider, in turn, the four agents of production, and examine the manner in which the amount paid for the use of each agent is determined. We take up, first, the share known as rent, which is a payment made for the use of land. Since the supply of land is practically fixed, we shall deal chiefly with the demand side of rent determination.

THE NATURE OF RENT

The Use of Land in Production. In general, the demand for land is based upon its usefulness in production. Land may be useful in any of several ways. It may possess the characteristics essential to the production of agricultural crops; it may be rich in mineral deposits, such as coal, iron, or petroleum; or, by reason of a favorable location, it may be suitable for use as a building site. We shall deal first and chiefly with the rent of agricultural land, which does not differ in nature from rent on building sites, and shall later discuss briefly the rent, or royalty, paid for the use of land that is desired for the extraction of minerals.

Let us begin with several assumptions that are contrary to fact, and, having discovered the causes and nature of rent, proceed to examine such conditions as may readily be observed in everyday life. Our first assumption is that there are no differences in the quality of land (all acres being precisely the same grade) and that it is available in unlimited quantities. Land under these conditions cannot command a rent, for our hypothesis places it in the category of free goods. Certainly no one will pay a price for a good that can be had for nothing, as is the case with land that exists in unlimited quantities.

Rent on Land of Uniform Quality. But, narrowing our assumption slightly, we may suppose that the land is of uniform quality; that it is so restricted in area that every acre has come under private

ownership; and, furthermore, that it is being cultivated up to, but not beyond, the point of diminishing returns. Under circumstances such as these, rent need not be paid. But if any part of this land, say an acre, should be withheld from use, or if there should appear in the market an additional unit of capital and labor seeking profitable employment, the situation would be materially changed.

Let us suppose that an acre of land is withdrawn from use, though an increase in capital and labor would bring about a similar result. Land will now be scarce in relation to capital and labor, it will be cultivated beyond the point of diminishing returns, and the owners of land will be in a position to demand and receive rent. This statement is based upon the principle of diminishing productivity. In explaining the situation, let us make the further assumptions that the land is being used for the growing of wheat; that each of the identical acres, when cultivated with one unit of capital and labor, yields 25 bushels of grain; and that (owing to the workings of diminishing returns) a second unit of these agents added to a single acre would raise the total yield of that acre to 45 bushels, increasing its output by 20 bushels.

Rent must now be paid for the use of this land, since the withdrawal of an acre from production would reduce the effectiveness of the capital and labor that have been employed on this acre. For, in order to find profitable employment, this capital and labor would now have to be applied to an acre or acres already being cultivated up to the point of diminishing returns. Thus employed, the agents that have been transferred would suffer a loss in productivity. Whereas they had produced 25 bushels of wheat with the aid of the acre of land on which they were originally used, their present productivity, as is indicated by the increased yield of the acre on which they are now used, would be but 20 bushels. The withdrawal of an acre would involve, therefore, a loss of five bushels. A tenant farmer using an acre of this land could afford to pay a rental up to the amount of five bushels, and would probably make the payment rather than give up the acre. Strictly speaking, it is a matter of indifference to the tenant whether, on the one hand, he retains this acre, paying five bushels for its use and having left 20 bushels for his labor and capital; or, on the other hand, he uses this labor and capital on another acre that he is already cultivating, and gets for their use the amount which they add to the total product of that acre (namely, 20 bushels).

The acre about which we have been talking is the marginal acre of land, *which may be any one acre of the entire given quantity*; and the five bushels that would be lost through the withdrawal of the acre constitute the marginal product, since they measure the productivity of the marginal acre. But we must remember that it is the equilibrium of supply and demand that decides which acre is to be the marginal acre, and which consequently decides whether the marginal productivity of land is to be great or small. Because this is true, it follows (perfect competition being assumed) that the rent of land will tend to equal its marginal productivity. Hence, by ascertaining the marginal productivity of a given type of land, we may learn also the amount of rent it will command. However, the forces back of the determination of rent are, as we have observed, the demand for the land (based upon its marginal productivity) and the supply of land (which is practically fixed).

Rent for Land of Different Grades. But we must give up the assumption of land of uniform quality, and consider the phenomenon of rent as it manifests itself in the world of reality. Land varies greatly in fertility and location. In discussing agricultural land we are interested mainly in the fertility of the soil and its suitability in producing crops; consequently we omit from our present discussion whatever advantage this agricultural land may have in the way of a favorable location. In the growing of wheat or other grain, it is found that some acres are extremely productive, some are good, some fair, some poor, and still others must be accounted very poor. Fig. 49 pictures the situation graphically, with the solid lines indicating the number of bushels of wheat that could be produced on land of different qualities with the use of identical quantities of capital and labor. The broken lines show the effects of additional applications of these factors. In each case the quantity of land is a single acre, and we are trying to see what the effects would be if capital and labor were added (one unit at a time) in units of uniform size which include unvarying proportions of these two agents of production.

When land of different qualities is available for cultivation, as in a newly settled region, it may be expected that the best land will be utilized first, and that of inferior quality later. This situation arises from the exercise of common sense on the part of the settlers; for the acres of best grade will produce, with a given expenditure of capital and labor, a larger product than can be had from less fertile

acres. Moreover, the best land will be cultivated intensively up to the point of diminishing returns before there is any temptation to produce on even slightly inferior land. For up to this point, a unit of capital and labor can be used more productively on first-grade land than on land of other grades.

The Effects of Diminishing Returns. In Fig. 49, we assume that diminishing returns set in immediately after the application of

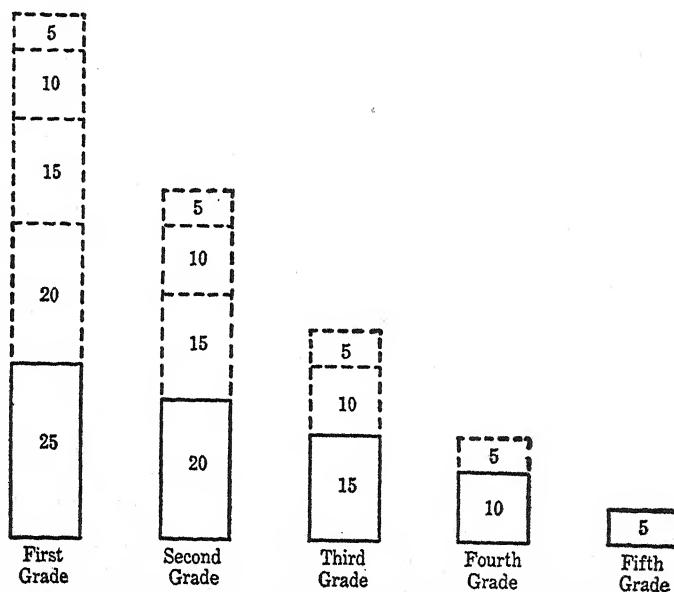


FIG. 49. THE CULTIVATION OF LAND OF DIFFERENT GRADES.

The diagram shows the principle of diminishing returns at work on each grade of land; "intensive" and "extensive" margins; and the equalization of "marginal products" of identical units of capital and labor when applied to land of different qualities.

the first unit of capital and labor to each of the several acres of land of different grades. The workings of diminishing returns are shown graphically through the use of areas marked off with broken lines; the progressively smaller additions to total product which result from the use of additional units of capital and labor on a single acre of land are indicated by progressively smaller areas enclosed by broken lines. If one unit of capital and labor were used on an acre of first-grade land, the product would be 25 bushels, and further

units of capital and labor would increase the total product as follows: The second unit would add 20 bushels; the third unit, 15 bushels; the fourth unit, 10 bushels; and the fifth unit, 5 bushels.

But long before a fifth unit of capital and labor was applied to the best land, it would doubtless occur to farmers that it might be advantageous to call into use some of the less fertile land, instead of depending wholly upon the cultivation of a limited quantity of first-grade land. We may reasonably assume that, through experimentation, it has been ascertained that if only two units of capital and labor were available they could be used with equally good results in two ways. For, as is shown in Fig. 49, both units could be applied to an acre of first-grade land, or one unit could be used on first-grade land and the other on second-grade land; and in each instance the result would be 45 bushels of product. This is true because we have assumed in our illustration that a first unit of capital and labor applied to second-grade land would be exactly as productive as a second unit applied to first-grade land. (In actual practice, it *might* of course be equally productive, more productive, or less productive. If it were *less* productive, the farmer would naturally employ this unit of capital and labor as a *second unit on first-grade land* rather than as a *first unit on second-grade land*.)

Holding, for the moment, to the assumption that there are but two units of capital and labor to be had, we see, by reference to Fig. 49, that only one of the two could be utilized in such manner as to bring a product of 25 bushels. The second unit, if added to the first and applied to the one acre of first-grade land, would bring only 20 bushels of additional product because this acre would then be cultivated beyond the point of diminishing returns. And if this second unit were used on the acre of second-grade land, it would again bring in a product of only 20 bushels, owing to the fact that second-grade land is less fertile than land of first quality. If three units of capital and labor, instead of two, were available, it would be most advantageous to use two units on the best acre and the third on the acre of second-grade land. If there were six units of capital and labor, they would presumably be disposed of (as shown in Fig. 49) by using three units on first-grade, two units on second-grade, and one unit on third-grade land.

Equalization of Marginal Products of Capital and Labor.

Fig. 49 indicates the way in which we might expect fifteen units of capital and labor to be utilized on five acres of land of different kinds.

It will be noted that the capital and labor would be so applied that the final application on each grade of land would bring a return exactly equal to the return from the final application on all other grades of land. This is necessarily the case, for if a unit of capital and labor were less productive in one place than in another, it would be shifted promptly to the more favorable position. The result is an equalization of marginal products, as was explained in the preceding chapter. The last unit of capital and labor to be applied to each grade of land may be thought of as a marginal unit, and the extra product that is forthcoming because of its use, as the marginal product. In the illustration it is shown that the marginal product of a unit of capital and labor is five bushels, and that this marginal product is the same on all grades of land.

THE CALCULATION OF RENT

The Marginal Product of Land. But for the present we are seeking the marginal product of land, and not of capital and labor. Our method is to withdraw one unit (say, an acre) of land from use, and note the extent to which production declines. This amount is the marginal product of this kind of land, and the value of this product is the share of income which may be secured for its use. We shall now undertake to determine the marginal product of third-grade land, the productivity of which is indicated in the third column of the diagram. To accomplish this result, we must drop the fiction that there is but one acre of this kind of land in use, and grant the existence and utilization of many such acres. Let us suppose that there are 1000 acres of third-grade land in use. Every one of these acres is being cultivated, of course, just as intensively as every other acre. This means that each acre yields 30 bushels of product when three units of capital and labor are applied to it. The removal of one acre from production might be expected, therefore, to lessen the total product by 30 bushels (see the third column of Fig. 49) and so it would, if the capital and labor previously used on this acre were allowed to lie idle. But they would naturally be employed somewhere if they could in this way be made to bring in a return. It is reasonable to suppose that they would be applied to those acres of third-grade land which were still under cultivation, though they might instead be applied to other grades of land without affecting our argument.

How productive would they be in this new capacity? The ques-

tion cannot be answered with absolute exactness, but we can arrive at a figure that is substantially correct. If 1000 acres of third-grade land have been cultivated in the past, with a yield of 30 bushels per acre, the total product has been 30,000 bushels. If one acre is withdrawn, the total drops to 29,970 bushels. But the three units of capital and labor formerly used on the acre now withdrawn from use can be applied to the remaining 999 acres. The marginal product per unit of capital and labor, when applied on 1000 acres of third-grade land, was five bushels. With the same number of units applied to 999 acres, the cultivation is slightly—but only very slightly—more intensive. The marginal product would remain, therefore, approximately five bushels per unit of capital and labor. Thus the three units that have been released would add *about* 15 bushels to the total product, bringing the production for the 999 acres up to 29,985 bushels.

Hence, the withdrawal of an acre of third-grade land would be accompanied by a net loss of 15 bushels. Fifteen bushels, therefore, constitute the marginal product of third-grade land, and the value of these 15 bushels is the amount that owners of such land could exact from tenants in the form of rent. By going through a similar process of calculation, it is possible to discover the marginal productivity, and consequently the rent, of land of any kind.

Intensive and Extensive Margins of Cultivation. The diagram illustrates very well the intensive and extensive cultivation of land. More and more units of capital and labor are used on the superior grades of land, but eventually a point is reached at which the cost of the unit of capital and labor is just equal to the value of the extra product that results from its use. This point is the "intensive margin" of cultivation; and it will be observed that there is an intensive margin for every grade of land. There is also an "extensive margin" of cultivation, but it is to be found on only one grade of land—the poorest grade that it pays to bring under cultivation, which is that grade on which it is possible to produce just sufficient goods to cover the payments that must be made for labor and capital, but no more.

"Marginal" or "No-Rent" Land. The poorest land in use is commonly called "marginal" land. It is also known as "no-rent" land because it yields so slight a product that it would not be cultivated if it could not be obtained rent-free. The product to be had from marginal land reimburses the farmer for his expenditure of capital and labor, but that is all. Fifth-grade land in Fig. 49 is marginal,

or no-rent, land, and its total product per acre is five bushels. The diagram shows that a unit of capital and labor, such as is being used on fifth-grade land, cannot be obtained for less than the value of five bushels. Consequently, an attempt to exact a rental for the use of fifth-grade land would be doomed to failure, since it would result merely in the withdrawal of capital and labor from such land, and its application elsewhere.

Shifts in the Margins of Cultivation. It should be noted, however, that the margins of cultivation, both intensive and extensive, may shift as a result of changes in the cost of one or more of the productive agents that are being applied to the land, or in the selling price of the product. If, for example, capital and labor became exceedingly plentiful and therefore very cheap, it might pay farmers to use these agents in vastly larger quantities, thus increasing both the intensiveness and the extensiveness of cultivation. More units of capital and labor would then be employed on each of the better grades of land, and land formerly regarded as too poor for cultivation would be brought into use.

An increase in the selling price of the product would have a similar effect. The high prices obtainable for coal and wheat in war times almost invariably result in reopening abandoned mines and growing wheat on land that was previously thought too unproductive for current use. An increase in the costs of capital and labor, or a decrease in the selling price of the product, would have an opposite effect. Either of these changes would lessen the intensity of cultivation on the better grades of land, and would cause the abandonment of marginal land which, under the new conditions, could not be used profitably and would therefore become sub-marginal—that is, too poor for current utilization.

Rent as a Surplus. Another method of determining rent is by calculating the productivity of capital and labor on the superior grades of land, and comparing the results with the productivity of the same capital and labor when used on marginal land. Turning again to Fig. 49, we see that five units of capital and labor employed on an acre of first-grade land bring a total product of 75 bushels. The same amount of capital and labor used on fifth-grade, or marginal, land would produce only 25 bushels. The difference, 50 bushels, indicates the superior productivity of first-grade land as compared with no-rent land. It is a surplus resulting from the use of superior land, and represents the amount that can be charged by the owner.

of first-grade land, in the form of rent, for the use of one of his acres. Since the landlord can charge as much as this, he assuredly will not charge less; nor can he charge more, for an attempt to do so would result in driving tenants from first-grade to marginal land where each unit of capital and labor would have a return of five bushels.

The three units of capital and labor which, in our illustration, are used on third-grade land would produce 15 bushels on marginal, or no-rent, land. They now produce 30 bushels. The difference, 15 bushels, is the rental of an acre of third-grade land, when figured as a differential surplus which is attributable to its productive superiority over marginal land. But 15 bushels were also the amount of rent that we arrived at when we computed the marginal product of third-grade land. The result, then, is the same, whichever method of calculation is employed.

Agricultural Land, Building Sites, Mineral Land. In dealing with agricultural land, we have naturally emphasized the fertility of the soil as being chiefly responsible for the productivity of the land, and consequently for the rent that can be had for its use. But the location of land is not without significance even in the case of agricultural areas, and location is of prime importance in rendering urban land "productive." The part played by location in affecting the rent of farming land may be seen by comparing the rental of a truck farm near a great city, such as New York or Philadelphia, with that of a similar piece of land in a region remote from dense population. The ability to get the "truck" to the consumer promptly and cheaply may sometimes be quite as important as an unusual yield per acre.

But in the case of urban land, fertility counts for little or nothing, and location is all-important. Of course, if the land is to be used for residences, certain qualities of the land (such as elevation, slope, and natural beauty) may be considered. These items, indeed, will be charged for by the landlord. But they are less vital, in determining the rent of residential sites, than the social and economic standing of the neighbors; the proximity to schools, churches, theaters, and other social centers; and adequate transportation facilities. These matters, it will be observed, relate to location and not to the quality of the land itself.

Location is of even greater significance when land is to be used for business purposes. A theatrical manager wants his playhouse to be in a theatrical district; a manufacturer often selects a building

site because it is near raw materials and labor supply; and a merchant builds his store, if possible, on a plot of land that is passed by thousands of persons daily. The Wanamaker store in Philadelphia, for example, stands on a piece of land which is said to be valued at some \$25,000,000. This high valuation, and the high rent that must be paid for the use of this lot, are not attributable to any natural qualities of the land, but are due to the excellence of its location for purposes of merchandising, and to the scarcity of land so admirably situated.

Rent paid for the use of mining land is usually called "royalty," and is in reality a payment made for the natural product that is extracted and will never be returned to the land. This is quite a different thing from the use of land for farming and building purposes, for the tenant farmer is expected to maintain the fertility of the soil year after year, and the use of a plot of ground as a building site does not wear out the land. The mine operator, however, is continually removing from the land a valuable commodity, with the result that its usefulness as mineral land will eventually be wholly destroyed. The farmer and manufacturer pay a rent of so much per acre or front foot, but the mining enterpriser pays a royalty of so much per ton of coal or barrel of petroleum taken from the ground. Indeed, he may be said to be actually buying the coal mine or oil field by slow degrees, since it will cease to have value as mineral land once he has brought to the surface the coal or oil for which he is paying a rent, or royalty.

Productivity, the Source of All Land Income. In one very important particular, the payments made for these three kinds of land are identical. That is, these payments represent, in each instance, the marginal productivity of the land for the use of which they are made; and they are high or low, depending upon whether the marginal productivity of the land under consideration is great or small. Farms that are unusually fertile command a high rent; building sites that are well located are paid for at fancy prices; and mines that contain high-grade ores bring in to their owners large royalties from those who are anxious to exploit these mineral resources.

We insisted in the preceding chapter that the price paid for the use of a productive agent, like that paid for an economic good of any kind, is determined by the general conditions of supply and demand. In our discussion of rent we have had little to say about supply, but have dealt chiefly with demand, as it is affected by

marginal productivity. There has been slight need to emphasize supply in analyzing the rent of land, since, in a practical sense, the quantity of any given kind of land is fixed. Though rent is paid only because of the productivity of land and though (if we assume perfect competition) the rent of a particular type of land cannot, in the long run, be higher or lower than its marginal productivity, it is not quite correct to say that marginal productivity determines the rent that will be paid. For marginal productivity itself depends upon the quantity of land that is available, being high if land is scarce and low if it is plentiful. The truth is that the supply of and demand for land of this kind determine its rent, with marginal productivity exerting a powerful influence on the demand side of the problem. Supply, being fixed, does not here play so active a part as it does in the determination of wages and interest.

RENT AS AN EXAMPLE OF PRICE DETERMINATION

Let us now examine rent as a problem in price determination. Considering first the determination of rent in the short run, we note that the condition is the special type of short-run supply that is known as fixed supply. For not only is the quantity of land incapable of increase, but it cannot be decreased, except in the sense that it may be rented—either to oneself or to another, yielding in the first case “implicit” and in the second “explicit” rent, as we shall observe presently. The point to be emphasized here is that, as always in the case of fixed supply, the total stock will be disposed of—at a high price if possible, but at a low price if necessary. The stock of land is supposed, of course, to be in the hands of many owners, so that the condition is one of competition.

If we assume that there are 5 million acres of a particular kind of land, we may draw a supply curve, as in Fig. 50, showing that it will be rented at whatever price is obtainable. SS is such a supply curve. DD is the demand curve for land of this kind, and, like all demand curves, it pictures a series of quantities which would be taken at a corresponding series of prices. Land may be wanted for purposes of consumption (as when it is to be used for residences, private grounds, and so on) or for purposes of production (as in agriculture, manufacturing, and merchandising). In the present chapter we have studied the significance of the marginal productivity of land as measuring the maximum amount a productive renter would pay for its use. In any event, the demand curve includes all

bids of all persons interested in gaining possession of the land, whether for use in production or in consumption. The equilibrium of supply and demand at the point P indicates the price, or the rent, of this kind of land under the assumed conditions. As is shown in Fig. 50, the rent would be \$15 per acre for the grade of land used in our illustration.

If the condition were one of monopoly instead of competition, it is conceivable that the owner of the land would gain more by renting a part only of his total holdings, allowing the remainder to go idle. This situation would be comparable, of course, to a monopolist

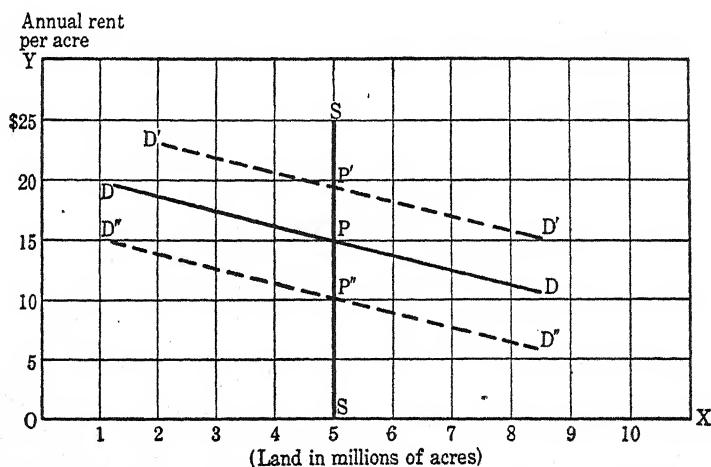


FIG. 50. THE DETERMINATION OF RENT FOR A PARTICULAR KIND OF LAND UNDER COMPETITIVE CONDITIONS.

The stock constitutes a fixed supply (S), and the rent is determined by the relationship between supply and demand (DD).

destroying a part of his stock of a commodity in order to secure a larger total return than could be had from the sale of the entire stock. In our illustration it appears that the monopolist would lose rather than gain by this action, so that he would presumably rent all of the land; but his course of action in this respect would be dictated by the demand schedule for land of this kind. If, for example, the demand schedule showed that renters would be willing to take 4 million acres at \$20 per acre, the monopolistic owner would doubtless withhold 1 million acres from use, and thus reap a monopoly profit of five million dollars.

There is nothing resembling costs of production in our determination of rent, since land, by definition, consists of natural resources created without the aid of labor. Since the quantity of land will remain fixed, the supply curve will not change with the passage of years, and in the case of the land which we are considering will always be the curve that is shown in Fig. 50. Indeed, the most we can say about rent in the long run is that it may be expected to vary directly with changes in the demand for land. An expanding population is likely to bring about an increase in the demand for land as the years roll by. Consequently, the price of our hypothetical grade of land would probably experience an increase decade by decade, and possibly even year by year. This increase, which would be dependent upon an increase in demand, may be indicated by drawing a new demand curve, $D'D'$. There is also a possibility, of course, that demand will decrease, as shown by the curve $D''D''$, in which case the price paid for the use of this land would likewise decrease.

ATTITUDES TOWARD RENT

Two Concepts of Rent. We have defined rent as a payment made for the use of the land, and have had in mind constantly the fact that land, from the economist's point of view, consists of natural resources that have been created without the aid of labor.

It is difficult, however, to find any land in use on which man has not made some improvements. Building sites have obviously been improved, in the economic sense, when houses, stores, or factories have been erected. A piece of agricultural land likewise is almost always improved in a way which makes it hard to distinguish *land* from *capital*; for agricultural land is usually fenced, it is sometimes drained or irrigated, and its usefulness is frequently dependent in part upon the construction of a house and barn. When a farm of this kind is leased to a tenant, just how much of the return that goes to the landlord can properly be termed rent? The answer depends upon whether one is viewing the situation as a business man or an economist.

From the business man's point of view, the whole return would be regarded as rent, for he thinks of the entire farm as an investment bringing him an annual income. But the economist finds it desirable, though sometimes difficult, to separate the return attributable to the improvements from that which results from the

productivity of land in the narrower economic sense. The latter he calls rent; the former is interest, since it is a payment made for the use of savings, which in this instance have been put into capital. It is not always feasible to draw a sharp line of demarcation between land and capital, but it is usually possible to estimate approximately how much of the total income from improved land should be credited to the capital investment; and once this is known it is an easy matter, of course, to figure how much should go to the owner of land, since this amount is the difference between the total income and the portion that must be paid in the form of interest.

Differences Between Land and Capital. There is no need, in a book of this kind, to dwell at length upon the differences between land and capital. But it will be worth our while to note two important points of difference. In the first place, land is, for all practical purposes, fixed in quantity, whereas the amount of capital may be greatly increased. The area of usable land is, it is true, added to slightly from time to time by drainage, irrigation, the building of dikes, and similar projects. The increase, however, is quantitatively of relatively little importance; moreover, this "made land" does not conform strictly to our definition of land. But the capital of the world increases by leaps and bounds. The growth of population creates new and larger demands for land, and, since the quantity available remains fixed, the price (or rent) mounts rapidly. The demand for capital also increases with the expansion of population, but the supply of capital may keep pace with the demand, and as a consequence the price paid for its use (interest) changes only little.

The second distinction between these two productive agents has to do with the fact that, if society so decreed, the payment of rent to individual landlords could be abolished without affecting in the slightest the amount of land available for production; the abolition of interest, however, would reduce the accumulation of capital and thus interfere with society's output of goods. If, for example, the people of a country should decide to appropriate all land rent through a system of taxation, there is no reason to suppose that the land would not continue to be used as in the past. But if interest were not paid to owners of capital, consumption would increase and savings would fall off, and as a result the industrial machine would presently be inadequately equipped. We shall discuss in a later

chapter the usefulness of interest in encouraging the building up of a large quantity of capital.

Explicit and Implicit Rent. Nothing has been said thus far, in our discussion of rent, about the landowner who does not lease his land to another but uses it himself. It is correct, in a case of this kind, to say that the land yields a rent; but this is known as *implicit rent*, whereas we have been talking chiefly about *explicit rent*. Explicit rent is that paid by a tenant to a landlord. It is paid because of the productivity of land which the owner permits the tenant to use. The amount paid for the use of a piece of land is a measure of the usefulness, or productivity, of the land. But this land, if used by the owner himself, would still be useful. If it is agricultural land, then the productivity which the owner, as a farmer, enjoys through use of the land, he as a farmer should pay to himself as landlord. The actual payment may not take place, and yet in a situation of this kind rent exists just as truly as under a landlord-tenant arrangement. Therefore, the owner of land who uses his land himself receives rent—in this case implicit rent; the landlord who leases his land to a tenant receives rent, which is called explicit rent.

The Value of Land. It is often desirable, for purposes of sale or taxation, to know the value of a piece of land. Land is wanted, of course, for the income it brings to its owner. This income is readily determined if it takes the form of explicit rent, for then it consists of the money payment made by the tenant to the landlord. And if the owner is using his land himself, the rent may be ascertained by comparing his land with similar land on which explicit rent is being collected. When the amount of rent is known, the value, or price, of the land may easily be calculated by "capitalizing" the rent at the prevailing rate of interest.

If, for example, the interest rate is 5 per cent and a piece of land is renting for \$1000 a year, its value must be twenty times \$1000, or \$20,000. If \$20,000 were lent out at 5 per cent interest, the return would be \$1000 a year. Hence, any commodity, such as a piece of land, that brings in a yearly income of \$1000 is worth \$20,000 when the interest rate is 5 per cent. If the rate were only 4 per cent, the value of a piece of land yielding \$1000 a year would be \$25,000; and if the interest rate were 10 per cent, its value would be only \$10,000. The value of land, then, depends upon the income which it will bring to its owner, instead of determining, as some

persons think, the amount of rent the owner is able to exact from a person using the land.

Rent is a payment made for the use of land.

Marginal land, or *no-rent land*, is land upon which can be produced goods that have a value just sufficient to cover the necessary payments for labor and capital used in their production.

1. Define "rent."
2. Distinguish between the intensive and extensive margins of cultivation in the use of land.
3. How do you account for the equalization of "marginal products" of identical units of capital and labor when applied to land of different qualities, as illustrated in Fig. 49?
4. What are the qualities which make agricultural land particularly productive, and what qualities are especially important in the case of building sites?
5. How does the royalty paid for the use of mineral land differ from rent paid for the use of agricultural land?
6. Distinguish between the business man's and the economist's concepts of rent.
7. In what important respects, so far as distribution is concerned, does land differ from capital?
8. Distinguish between implicit rent and explicit rent.
9. How may a landowner calculate the value of land if he knows the amount that can be secured for its use?

REFERENCES FOR FURTHER READING

See list of references at the end of Chapter 29.



27. *Wages*

Wages are a payment made for the use of labor. We have defined labor as human energy expended for the purpose of acquiring income. Whether the labor is of high or low quality, whether it is very scarce or fairly plentiful, and whether it brings in a large or small income, it is still labor if it meets the requirements of this definition.

Money Wages and Real Wages. We have already discussed the difference between money income and real income, noting that money income consists of the number of dollars, or other monetary units, that one receives over a period of time, while real income is made up of the commodities and services one is enabled to enjoy through the expenditure of money income. The distinction between money wages and real wages is very similar. Money wages are a form of money income, and are a money payment made for the use of labor; real wages are the economic goods the workers secure when they spend their money wages.

Real wages, of course, are vastly more important to the worker than money wages. The latter are sometimes very deceptive. For money wages may seem to be high until translated into real wages through the purchase of commodities and services, when it may be discovered that in reality they are very low, because the purchasing power of money has been greatly reduced by a rise in the price level. On the other hand, real wages may be higher than is suggested by the size of the money wage, because prices in general are unusually low.

It is important, in considering wage data, to give attention to actual earnings and not merely to wage rates. Moreover, the earnings should relate to more than a few weeks, or even months, if one is to get an accurate idea of the adequacy of wages in seasonal occupations, such as mining, in which there are sometimes weeks or months of enforced idleness every year. The rates per hour, per

day, or per unit of product do not in such instances tell the whole story. But if money wages actually earned over a fairly long period (say, a year) are known, and an index number of purchasing power is available, it is possible to interpret wages in terms of commodities and services, and in this way to ascertain whether the wage earner's standard of living is rising or falling. The use of actual earnings makes it possible, moreover, to compare the economic status of workers in one occupation with that of workers in other occupations. When, therefore, we speak of wages, we shall have in mind the average yearly real wages of labor.

THE DETERMINATION OF WAGES

Wages Under Simple Conditions of Production. Labor is used at times in combination with very small quantities of land and capital; and, again, with large amounts of these agents. The importance of labor as a factor of production is most apparent when it is seen at work on free land, operating with little or no capital. Let us consider the productivity and the wages of laborers engaged in gathering wild berries, catching fish, trapping small game, or making crude pottery. These activities might easily be conducted on free land, some few miles distant from a settled community or railway junction, at which point purchasers for the goods could be found. Under these conditions, the workers would have no rent to pay. Moreover, the expense for fishing tackle, traps, and similar equipment would be so slight that it would cut a small figure, and it may therefore safely be disregarded in the present discussion.

In circumstances such as these, whatever the producer of these goods could secure for his commodities in the way of price would go to him alone; and this amount, whether large or small, would consist only of wages, for there would be no payment to be made for the use of land, and the cost of the capital used, per unit of salable commodity, would be infinitesimal. In the economic sense, commodities produced in so simple a manner would be the product of labor alone, and the amount they commanded when sold would measure the productive importance of that labor. This amount (and this is true of the price paid for any kind of consumers' goods) would measure also the utility or desiredness of the marginal unit of the good to the marginal purchaser.

Under these conditions, it would be difficult to disprove the statement that the laborer receives for his efforts the full value of the

economic importance of his labor. But the size of his reward for this labor would not necessarily bear any relation to the amount of energy exerted. Payment would be made not on the basis of effort expended, but on the basis of the supply of and demand for the product. With no need to pay any productive agent except labor, the quantity of a commodity would be limited only by the unpleas-antness or disutility of expending effort in production. The demand for the commodity would depend upon its utility. The price of the good would be determined by an equilibrium between (1) the sup-
ply of the good, as limited by the disutility of the labor required in its production, and (2) the demand for the good, as affected by the utility (or desiredness) of the good and by purchasing power. This amount, under the conditions outlined above, would go to labor.

It is worth while in this connection to emphasize the fact that if the withdrawal of a unit of labor results in the loss of economic goods which are much desired, the importance of that labor will be reckoned at a high rate, and a large payment will be made to avoid its withdrawal from production. Contrariwise, only a small payment will be made for the use of a unit of labor, the withdrawal of which means the loss of goods that are not highly valued. When, then, berries and fish are offered in such large quantities that the price is low, the economic importance of the laborers producing them will be small. Since the total payments received for these simply produced commodities go to labor in the form of wages, it can easily be seen that the worker receives high wages when his labor results in goods that are very scarce and much wanted, whereas he can command only low wages when the goods he is producing are quite plentiful in relation to the demand.

Wages Under More Usual Conditions of Production. Conditions of production are usually much more complicated than has been suggested in the illustration we have just used. Actual examples of production in which the total product goes to laborers in the form of wages are to be found ordinarily only in sparsely settled areas where primitive methods of production are still current. For a dense population means almost certainly a charge for the use of land; and production, unless it is of a primitive, direct type, requires the use of capital, and this in turn is not to be had without payment.

Table 36 gives some hypothetical figures which serve to show how wages are measured in an economic society in which rent is

charged for the use of land. The problem of interest will be reserved for discussion in the following chapter.

In this table we assume that the amount of capital used is small, and that the little which is needed is supplied by the laborer himself. A farm laborer, for example, might be expected to provide himself with a hoe with which to do a part of his work, though some units of labor would probably be employed without the use of any capital whatsoever. If potatoes are being grown, one unit of labor (a day's work of a given grade) with a hoe might suffice, so far as capital is concerned. If a second unit of labor is used, it

TABLE 36. TOTAL CROP AND MARGINAL PRODUCT OF LABOR

(Varying quantities of labor are used on one-acre plots of land of three different grades)

Units of Labor (in days of work)	First-Grade Land		Second-Grade Land		Third-Grade Land	
	Total Product (bu.)	Marginal Product (bu.)	Total Product (bu.)	Marginal Product (bu.)	Total Product (bu.)	Marginal Product (bu.)
1	25		20		15	
2	45	20	35	15	25	10
3	60	15	45	10	30	5
4	70	10	50	5		
5	75	5				

could consist of unaided hand work, such as weed-pulling. A third unit might be expended in picking stones, a fourth in killing potato bugs, and a fifth in a second hand-weeding later in the season. Capital therefore plays so small a part in the present example that we shall not consider it at all, but shall take it for granted that the only payments to be made are for the use of land and labor. All of our labor units, of course, are exactly alike, each consisting of a day's work of a given grade.

Because of the workings of diminishing returns, the productive importance of labor is less when many units of labor are used with a given quantity of land (or capital) than when few are used. The productive importance of a unit may be determined at any time by removing one unit temporarily, noting the loss in total product that results, and ascertaining the value of the amount lost. The illustration in Table 36 suggests that land is so scarce that it is cul-

tivated intensively, with considerable labor employed on each acre. The greater the number of labor units used (if the other productive agents remain unchanged in quantity), the smaller will be the marginal product of labor. Under competition, labor will continue to be applied up to the point at which its cost is equal to the value of its marginal product.

Quality and Productivity. The table shows clearly that a small marginal product does not necessarily result from inferiority of the labor unit. In many cases, it is attributable rather to the inferiority or scarcity of the *other factors* of production. A third unit of labor expended on first-grade land would have, according to our table, a marginal product of 15 bushels; but if a third unit were used on second-grade land its marginal product would be only 10 bushels; and if applied to third-grade land it would have a marginal product of but 5 bushels. In each of these three instances the labor units are identical, but in the case of second-grade and third-grade land they would have inferior productive agents to work with, and consequently their marginal product would be small. The effect would be similar if, in a manufacturing enterprise, the capital used (machinery and tools) differed in quality; for those labor units that were compelled to work with poor capital would be less productive than those coupled with high-grade modern capital.

Scarcity and Productivity. Moreover, if land and capital were uniform in quality and of very high grade, but were so limited in quantity that they had to be used sparingly, while at the same time labor was available in large quantities, the marginal product of labor would be smaller when many units of labor were used than when few were used. We see, then, that when the quantity of labor of a given kind is large in relation to the quantities of the other factors, labor has but a small marginal product. In Table 36 the marginal product of labor is only 5 bushels *because* labor is so plentiful, there being twelve units available for use on these three acres of land. If there were only nine units of labor to be had, the marginal product of labor would be 10 bushels, though the labor would not be of any better quality than when it had a marginal product of 5 bushels. It is evident, then, that the quantity of labor affects greatly the wage each unit can command, since labor's marginal product depends largely upon the quantity of labor available for use if the quantities of the other agents of production remain unchanged.

Uniformity and Differences in Wages. The productivity of the last unit of labor to be employed measures its remuneration, and all labor units of this type and grade will receive the same wage, in accordance with the Law of One Price. The equalization of the marginal product of a given grade of labor throughout the entire market is shown in the "Marginal Product" columns of Table 36, and also in Fig. 49 (though the marginal product in this diagram is not that of labor alone, but of labor and capital combined).

There are many types and grades of labor, as there are many kinds of land, and it is often possible to find numerous types of labor at work at one time on the making of a single commodity. In a modern manufacturing plant, such as a clothing factory, there are dozens of kinds of workers, and probably almost as many different wage rates. In a later section of the present chapter we shall discuss differences in wages from the point of view of the supply of the various types and grades of labor. For the present, we may repeat the observation that the wage paid for a unit of labor, of whatever type or grade, tends under competition to approximate the full value of the marginal product of such labor in the long run; and that the marginal product may be ascertained by withdrawing from production a single unit of the labor in question and finding out how much of the total product is lost through its removal.

The "Current Rate" of Wages. It would not be correct to assume that this is the way the individual business man determines the wages of his workers. He does not. Instead, as we have already suggested, he pays the current rates of wages for labor of various kinds—rates that are determined by conditions of supply and demand as they relate to each of the many kinds of labor used in industry. But these current rates represent also the estimates of business men in general as to the marginal productivity (or "worth in production") of labor. We saw in Chapter 25 that it pays the enterpriser to employ a productive agent up to the point at which the value of the additional product resulting from the use of a unit of the agent is just sufficient to cover the cost of the unit. Consequently, business men are continually experimenting and estimating, trying out various combinations of various agents. Thus they learn a great deal about the marginal productivity of the several agents, and by their competitive bidding they establish rates of wages which may be said to approximate the estimated value of labor's marginal product.

Competition in Wage Determination. We are not arguing that an enterpriser would be unwilling to pay less for labor than the full value of its marginal product. But free competition among employers tends to make it impossible for him to do so. If the value of the marginal product of a unit of labor is \$1.00, an employer would doubtless be delighted to pay only 80 cents in wages and reap 20 cents in additional gain. But in a situation such as this, some other employer, noting the large margin of gain and considering that 15 cents of gain is better than none at all, will almost certainly offer a higher wage, say, 85 cents, and still another will bid 90 cents, and so on until this margin of gain is wholly, or at least virtually, wiped out. So long as an enterpriser can gain anything at all by taking on additional workers, it is reasonable to suppose that he will do so. This is particularly true in an industrial era in which small unit profits and a large volume of business are the watchword of many enterprisers.

Supply and Demand in Wage Determination. We have surely said enough to indicate that the demand for labor is closely related to the marginal productivity of labor. Labor is wanted by enterprisers because it is productive, and under competition wages cannot in the long run be far above or far below the value of the marginal product. But the marginal productivity of labor, like that of land, depends upon the equilibrium of supply and demand, for the marginal productivity, and the wage, of a certain kind of labor will be low if that kind is very plentiful; and the marginal productivity and wage will be high if the labor is very scarce.

The quantity of labor of a given type is not fixed, as the quantity of land is fixed. That is to say, the quantity of land is permanently fixed (except for quite unimportant changes), but the quantity of labor may be increased or decreased over a considerable period of time. It does take considerable time, however, to effect an appreciable change in the labor supply. The quantity of labor in general depends upon the size of the population. The quantity of labor of a particular kind depends upon the number of persons able and willing to perform the required work. This number, in turn, is affected by native ability, the cost of training, the mobility of labor, and several other factors which we shall examine later in the present chapter.

The Subsistence Theory of Wages. We wish at this point to deal with an important influence upon the supply of labor, namely,

the insistence by workers of a given kind upon an established standard of living, or even upon a rising standard. Since labor cannot be had without provision being made for the maintenance of human beings, there are certain minimum expenses for food, clothing, and shelter which must be met if a supply of labor is to be available. According to a theory of wages known as the Subsistence Theory, which was once popular among economists, wages tend to be fixed at that figure which will provide the worker with a bare subsistence for himself and his dependents. The presumption is that if the wage is more than sufficient for subsistence, workers will have larger families, the quantity of labor will be increased, the marginal productivity of labor will decline, and wages, as a consequence, will fall until they are again at the subsistence level.

The Influence of Established Standards of Living. An examination of present-day wages shows that the theory that subsistence regulates the supply of labor is unsound. Not only do workers in a great many instances command wages that provide for themselves and their families much more than a minimum of the necessities of life, but there is good reason to believe that the size of the family is often deliberately regulated in order that a particular standard of living may be maintained. Once a family has become accustomed to a certain standard, it is likely either to hold tenaciously to that standard or to attempt to raise it to a still higher level.

A Summary of Wage Determination. It appears clear, therefore, that standards of living do a great deal to affect wages in the long run, through their influence upon population and hence upon the quantity of labor. This fact does not in any way invalidate our statement that the demand for labor is based upon marginal productivity. The truth is, of course, that both the supply of labor and the demand for labor are responsible for determining the wages in a particular occupation.

The standard of living is simply one of several factors which affect the supply of labor and consequently affect wages. Insistence upon a certain standard of living limits the size of the population, and this and other factors affect the quantity of a given kind of labor. On the side of demand, marginal productivity is of the utmost importance, since the value of the marginal product limits the amount enterprisers can pay for labor. Thus, the economic importance of a unit of labor is measured by the marginal productivity of that type of

labor; and marginal productivity, as we have seen, is high or low, depending upon the quantity of labor. While it is true that enterprisers cannot afford to pay more for labor than the value of the marginal product, it is equally true that competition among enterprisers for the services of workers tends to keep the wage up to approximately this amount. In the absence of strict competition, marginal productivity will still measure the *maximum* that enterprisers will pay, while the *minimum* that workers can accept (and might conceivably be forced to accept) will be a bare subsistence wage. It is evident, then, that wages might be much lower than marginal productivity under non-competitive conditions.

WAGES AS AN EXAMPLE OF PRICE DETERMINATION

Wages, like rent, may be treated as a problem in price determination. In Fig. 51 we have a demand curve, DD, indicating the quantities of labor that employers would hire at various prices; and a supply curve, SS, showing the quantities of labor that workers would provide at the several prices. Of the demand curve, we need say nothing further than that it is based upon the marginal productivity of labor of the particular type that is being considered. The supply curve indicates that the condition is almost, but not quite, one of fixed supply. Labor is a perishable good, in the sense that it must be used day by day or be wasted; that is to say, it cannot, like material goods, be stored up over a period of time and then sold in large quantity. Since most workers are anxious to make the most of the one thing they have for sale—labor—and since, moreover, but few can afford to be idle for any appreciable period of time when work is available, we are not far from the truth in suggesting that most labor will sell at whatever price can be had for it, provided only the price is not ridiculously low. If, however, the figure is substantially lower than the wage that has recently been paid, and to which the workers have become accustomed, some of the workers may decide to hold out for the customary wage and refuse to work unless it is forthcoming.

In Fig. 51 we have suggested that 24,000 workers would, if necessary, sell their services for as little as 50 cents a day per worker, and that the total number of workers of this kind, 26,000, would go to work if the wage went as high as \$5.00 a day. The figures are hypothetical, of course, but it is certainly accurate to say that a large percentage of the workers of a given kind would work even at

very low wages, that the number would increase if the wage were somewhat higher, and would be still further enlarged if an unusually high wage were offered. For while there are many workers who must accept jobs at whatever wages they can get, there are others who consider themselves "semi-retired" but cannot resist the lure of what seem to them to be exceptional wages, and still others who might be drawn from other walks of life by wages that were phenomenally high, as was the case in some occupations during World War II.

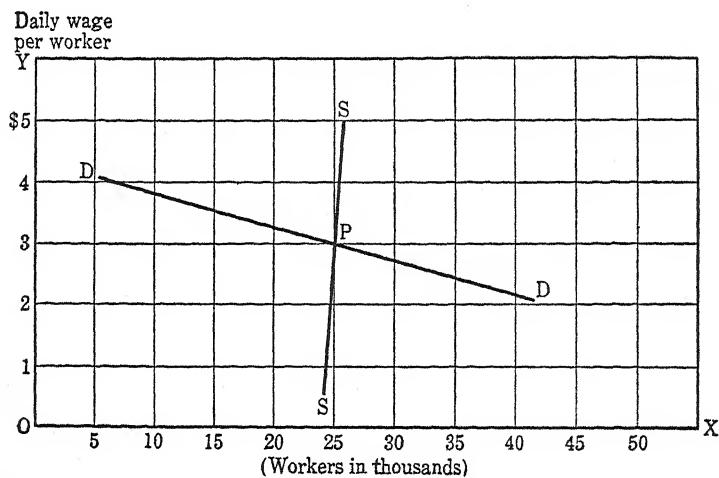


FIG. 51. THE DETERMINATION OF WAGES FOR A PARTICULAR KIND OF LABOR UNDER SHORT-RUN COMPETITIVE CONDITIONS.

We have been dealing, of course, with wages in the short run. Of wages in the long run, there is not much of a definite nature to be said. It is probably true that some families would be larger, and consequently the total quantity of labor would be greater, if wages over a long period of time were high than if they were low. But it would be incorrect to say that there is a direct relationship between wages and the size of families, in the sense that the prospect of high wages leads parents to have many children in order to secure these high wages. On the other hand, as we have already said, the size of families is sometimes limited to the number parents feel they can rear properly with the income that is available, and to the number, moreover, that can probably find sufficiently re-

munerative employment when the time comes for them to earn their own living.

What we have in mind, of course, is that the "production" of human beings (from whom we get our stock of labor) is so far from being strictly a money-making matter that we have no assurance that, in the long run, the payment of high wages throughout our economic society will have the effect of increasing the birth rate and consequently the number of workers. And if this is true of wages in general, it is equally true of wages in a given occupation. Indeed, the factors which influence the quantity of labor in the long run are so many, and are so largely incalculable, that economists have not been able to work out a satisfactory theory of *long-run* labor supply.

DIFFERENCES IN WAGES

We may now note some variations in wages between workers of the same type in different countries, and between those engaging in different occupations in the same geographical area.

Wages in Different Countries. There does not appear to be any tendency toward a general level of wages, in the sense of an equalization in the wages paid to those engaged in different occupations. For reasons which we shall discuss presently, wages in some occupations are low and those in others are high; and there is some evidence that these wage differences are increasing rather than diminishing. However, there is such a thing as a wage level in one region being higher than the wage level of another region. For example, real wages are considerably higher in the United States than in England. This does not mean that the worst-paid workers in this country have larger incomes than the best-paid in England, but it does mean that, trade for trade, American labor enjoys higher real wages than British labor.

In both instances the wages tend to approximate the marginal productivity of labor. But the greater marginal productivity of American labor, it must be remembered, is not necessarily an indication of greater ability or a larger expenditure of energy on the part of the workers of this country. It merely means that, conditions being what they are, the withdrawal of an American laborer from production brings a greater economic loss than the withdrawal of a British laborer engaged in a similar line of work.¹ In general, when

¹ Some specific reasons for wage differences of this kind are mentioned in chap. 23.

there is a great abundance of land and capital that can be combined with each available unit of labor, wages will be high; when labor is plentiful, and land and capital are relatively scarce, wages will be low. This statement provides the chief explanation of America's superiority in wages.

Competition Among Laborers in Different Regions. Since wages in general are higher in the United States than in other countries, we might expect to find a continuous stream of workers leaving those countries and migrating to America to take advantage of the greater economic opportunities that this newer region has to offer. Our statistics of immigration show that a movement of this kind has been very common. In each of a number of years, more than a million immigrants have come annually to this country, and this influx has doubtless done something in the way of equalizing wages between this and other countries.

But there are obstacles to mobility of labor, and therefore to competition among workers of different countries. One barrier to immigration into the United States is the stringent legislation that has been adopted in recent years, by reason of which the total number of immigrants admitted annually by quota to this country from the eastern hemisphere is now limited to 150,000. This is a way of lessening competition and thus establishing a relatively permanent difference between wages in this country and other countries. But in addition to this form of interference with world competition among wage earners, there are other forces that tend to keep human beings in those parts of the world in which they have been born and reared. Among the deterrents to mobility of labor are the love of native land, the disinclination to leave relatives and friends, the cost involved in moving oneself and family to a distant country, and the element of uncertainty that "makes us rather bear those ills we have than fly to others that we know not of."

Even within a single country, such as the United States, there is much less movement on the part of labor than one might expect to see; and as a consequence there are sometimes very considerable differences between wages in the same trades in two or more states. For example, the wage rate for carpenters, in Atlanta, some years ago, was 80 cents an hour; in Boston, \$1.25; and in New York City, \$1.50.² But it must always be remembered, in comparing money

² The shortage of labor during and immediately following World War II

wages, that the cost of living also varies as between cities; and, moreover, that terms designating trades (such as "carpenter," "machinist," and so on) may be interpreted differently in different parts of the country.

Wages in Different Groups and Occupations. Differences such as those just noted should make us wary of attempting to speak with exactness about differences in real wages. However, we have sufficient data of a reliable nature to enable us to make certain observations without running any great risk of inaccuracy. We know, for example, that some types of workers are paid handsomely, while others receive a relatively small wage. Without making any claims to exactness, we may suggest the following classifications:

1. *Common Manual Laborers.* These are workers whose contribution to production results chiefly from the expenditure of physical strength. No special training is necessary, and the work is free from responsibility. The wages are usually low and decline rapidly after middle age is passed.
2. *Semi-Skilled Workers.* In this group we include the operatives of semi-automatic machines, whose task is merely that of machine-tending; also, clerical workers filling thoroughly routine jobs. In neither case is a high grade of ability demanded, nor is there a long period of training to be gone through. The pay may be slightly higher than that of common laborers, or it may at times be lower. But the worker does not depend upon physical strength for the performance of his task, and is able to carry on at a more advanced age.
3. *Skilled Workers.* In this field of activity both native ability and training play a part. Here we find skilled craftsmen, such as machinists, carpenters, plumbers, electricians; high-grade clerical workers, such as bookkeepers, expert stenographers, and so on; and other types of workers whose duties involve the assumption of some responsibility and entail a considerable period of training before proficiency is attained. We may include in this group those who operate small businesses, such as corner grocery stores, small restaurants, shoe-repair shops, and the like. Workers in this class command comfortable, but not high, incomes.

increased these pre-war wages greatly, but did not destroy the wage differentials as between different sections of the country.

4. *Professional Men and Business Managers.* This group includes lawyers, physicians, accountants, and other professional men whose success usually hinges upon the possession of considerable native ability and an extended course of training. Salesmen of high grade, such as the better class of those selling insurance and securities, may well be included. Here also belong many of our business managers. The members of this group, in general, have incomes that enable them to buy high standards of living.
5. *"Captains of Industry."* This term is used to designate those who are outstanding leaders in the economic world, and who, by reason of their unique abilities, are able to secure phenomenally high wages. In this class are the organizers and directors of "big business," "wizards of finance," and business managers who are more than ordinarily capable. Here also, because of their extraordinary scarcity, belong some of our famous stars of the stage and screen, champion pugilists, and an occasional lawyer, playwright, and novelist.

Non-Competing Wage Groups. This is admittedly a rough and ready classification, but it will serve to illustrate a situation that is responsible for many and great differences in wages. Wage classes such as are here described are often called "non-competing groups," for the reason that the members of one group are seldom in a position to bid against the members of other groups in the struggle for economic success. It requires no argument to show that manual laborers do not compete with great financiers. It is less clear, perhaps, that members of Group No. 1 are unlikely to bid for jobs wanted by those in Group No. 2; but in the main there is little competition between any two of the five groups.

Occasionally, manual laborers may stray from Group No. 1 and, getting into Group No. 2 and being capable of doing semi-skilled work, bid against members of the second group, and thus bring down wages slightly; and semi-skilled workers from Group No. 2, having gone through a course of training, may offer some competition to skilled craftsmen in Group No. 3. This sort of thing may take place once in a while between members of any two groups, but such instances are comparatively rare. It is safe to say that there is but little movement of workers from group to group. The tendency seems to be for workers to "stay put," once they get into

a particular wage class. The obstacles that must be surmounted if one is to move into a higher class are very real. They have to do with both native ability and training.

Let us suppose, for example, that a skilled worker wishes to move from Group No. 3 to Group No. 4. He might be an excellent barber or bookkeeper, and yet be wholly incapable of becoming a physician or accountant because he is lacking in native ability. And even if his natural endowments were such as to make the move feasible, there would still remain the question of securing the requisite training. When a man has established himself in any one of the groups, it is probable that he has also shouldered certain responsibilities, such as the support of a family, that prevent his giving up a sure, fairly satisfactory income while pursuing the training necessary for admission to a higher wage group.

Permanent Stratification of Groups. We know that it is not entirely impossible for workers, once settled in a group, to rise to another group higher up the wage scale; but the difficulties are so great that moves of this kind are unusual. But what about the children of these workers? May they not properly aspire to membership in a higher economic group? The answer is that it is possible, but not probable, that a boy will advance from his father's wage class into one paying a larger income. The difficulties, again, are related to natural capacity and environmental influences. We cannot be sure that the son will start life with greater native endowments than his father. But even if he does, there is the troubrous problem of securing training for the higher grade of work. He may, it is true, enjoy greater educational advantages than his father has had; but then, again, he may not.

What one does in the way of securing an education depends, probably more often than not, upon the environment in which one is situated. Environmental influences are scarcely calculated, in the low-wage groups, to spur one on to great deeds. The son of a manual laborer, though he has in him the making of a skilled electrician, a great lawyer, or a merchant prince, is unlikely to receive encouragement from his immediate family and associates, to set forth upon one of these careers. Indeed, it is probable that he will never learn of his inborn capacity for greater economic achievement; that he will promptly get used to the standard of living of his father's wage class, and that, when he reaches man's estate, he will accept a job at "good wages" and continue to hold this job, or a similar

one, throughout his working life. There is no way of knowing how much human talent goes to waste from lack of discovery or development, but there can be little doubt that the losses of this kind are enormous.³

These are some of the hindrances to a free movement between the various wage groups that provide economic society with the productive agent we call labor. Because there is no competition worth mentioning between these groups (though there may be a good deal of rivalry for jobs within a given group), wages may be high in one group and low in another, as we have already suggested. Whether they are high or low will depend upon the supply of and demand for labor of the various kinds. High wages are based on the scarcity of labor, and low wages on its abundance. For example, the success of members of Groups No. 4 and No. 5 in securing high incomes is due primarily to the limitation of numbers of these fortunate groups. If captains of industry were plentiful instead of scarce, they would receive much lower wages than at present; but, as we have just explained, they are free from competition of workers outside their own group. So long as these various groups are separated one from another, with little opportunity for workers to move from group to group, we shall continue to have wage classes.

Wage Differences Within Non-Competing Groups. There are wage differences also between the various occupations within a given wage group, though differences of this kind are not so extensive as those which exist between the so-called non-competing wage groups. In Group No. 3, for example, are skilled workers of many types, and there are differences in the wages of these various craft workers. To a large degree these differences are permanent in nature, being attributable to relatively slight differences in natural abilities or environmental conditions, or both. Wages, as we have seen, are determined on the basis of the demand for and supply of labor. If, then, one type of skilled workers commands a higher wage than another type, we should expect to find the explanation in a scarcity of the better-paid craftsmen.

Occupations that pay a high wage ordinarily, in the long run, draw workers from occupations that are paying low wages, so that these differences tend to disappear under conditions of perfect com-

³ This point is well made in J. A. Hobson, *Work and Wealth*, London, George Allen & Unwin, Ltd., 1933, rev. ed., pp. 50, 51.

petition. However, the number of workers able to qualify for the better-paid jobs is affected by natural ability, the encouragement or discouragement received from relatives and friends, costs of training, and the like. The consequence is that competition is interfered with. Hence, we often have within a group some persistent wage differences, similar in kind to the wage differences between non-competing wage groups, but of much less significance when expressed in dollars and cents.

Seasonal Occupations and Cost of Training. Some occupational wage differences are more apparent than real. For example, they may represent differences in *wage rates* rather than in yearly earnings. The wages of miners, clothing workers, and actors may appear to be high on the basis of hourly or weekly earnings, but are not so attractive when it is known that these occupations are seasonal in character, sometimes providing only thirty or forty weeks of work out of the fifty-two. It may seem that a plumber receives unduly large wages; but he is forced, in order to qualify for his task, to serve a long apprenticeship at extremely low wages, and the high income ultimately received is, in part at least, a payment for those years of apprenticeship.

Indeed, whenever considerable expense is incurred in connection with the development of skill in a given trade, workers will demand reimbursement for these outlays, or compensation for loss of wages during apprenticeship, in the form of incomes higher than those received in occupations which one may enter without making a sacrifice for training. If it were found that extra large wages were not forthcoming in the trades involving extensive training, fewer and yet fewer workers would enter those trades, the number of workers available for such work would decline, and wages would rise. Hence, we see the significance of the quantity of labor as a factor in determining wages.

Psychic Income in Attractive Callings. It is frequently said of teachers and members of certain other professions that, in view of the time and money they expend for professional training, they are very poorly paid. A teacher of economics can scarcely be expected to discourage the spread of ideas of this kind; and yet it should be stated in all fairness that teachers' salaries are not so low as at first sight they appear to be, for teachers receive a considerable income, wholly apart from financial remuneration.

The college teacher may not receive a large money wage, but he

enjoys what is, to many teachers, even more important than a high monetary return. His hours of actual teaching are few; his vacations are long, and, if necessity presses too hard upon him, they can be converted into cold cash. He has leisure for self-development, the stimulus provided by association with fellow teachers in various fields of learning, and the satisfaction of contributing something to the intellectual life of his students. Advantages such as these, which make a particular occupation attractive, are often called psychic income.

Psychic income, though not measurable in terms of money, is often quite as acceptable as money income. Military leaders are paid largely in fame and titles; actors in applause; public officials in prestige; and scientists in the satisfaction of having increased the sum total of human knowledge. Ordinarily, of course, one's material needs must be reasonably well provided for before one is in a fit position to enjoy psychic income.

Hazardous and Disagreeable Occupations. Some occupations, then, bring rather small money payments because they present features so attractive that high wage payments are unnecessary. Other jobs, because they involve working at dangerous tasks, command wages that sometimes appear to be disproportionate to the skill demanded. Structural steel workers, steeple jacks, and others who engage in hazardous and spectacular work are not uncommonly paid higher wages than those equally skilled whose occupations are less dangerous. The spectacular element is worth emphasizing, for there are many occupations that collect a heavy toll in accidents and industrial disease and yet offer to workers no extra pay by way of compensation for the risks that they take. A worker who runs a risk of sudden death in following his occupation stands more chance of being paid for the extra risk than does the worker whose job results in slow, but almost certain, death through industrial poisoning.

It is said by some writers that workers will refuse to take jobs that are hazardous or especially disagreeable, without the incentive of unusually high wages. This statement, if true at all, is true only to a very limited extent. Certainly, it has yet to be proved that industrial accidents and industrial disease are more common among the well-paid than among those of smaller incomes. It appears, rather, that the reverse is true; that most of the dangerous and disagreeable tasks in our modern economic society are performed by

persons who lack bargaining power, and who, rather than be without work, accept whatever wages and working conditions are offered them. It is certainly correct to say that low wages and dangerous or disagreeable work often go together.

Wages are a payment made for the use of labor.

Money wages are wages expressed in terms of money.

Real wages are wages expressed in terms of economic goods.

1. Define "wages."
2. What is the difference between money wages and real wages?
3. Money wages "are sometimes very deceptive." Explain.
4. Why is it desirable, in dealing with the distribution of income, to think of wages as referring to the average yearly real wages of labor?
5. "The size of the wage paid to labor does not necessarily bear any relation to the amount of energy the worker has exerted." Explain.
6. "Because of the workings of diminishing returns, the productive importance of labor declines as more and more units of labor are used with a given quantity of land (or capital)." What effect does this decline have on wages?
7. "Labor will continue to be applied in any economic enterprise up to the point at which the cost of the labor is equal to the value of its marginal product." Why?
8. Labor of a given quality sometimes has small marginal productivity and at other times large marginal productivity. Explain.
9. What, if anything, has scarcity of labor to do with its marginal productivity?
10. Is it certain that, under perfect competition, every unit of a given kind of labor will be paid for at the same rate as the marginal unit? If so, why is this true?
11. "The wage paid for a unit of labor, of whatever type or grade, tends to approximate the full value of the marginal product of that unit of labor." Why may this wage not be higher or lower than the value of the marginal product?
12. How may one determine the marginal product of a given type of labor?
13. "Marginal productivity does not *determine* wages, although wages and marginal productivity are equal." What, then, does determine wages?
14. State the Subsistence Theory of Wages.
15. What evidence have we that the Subsistence Theory of Wages is unsound?
16. How are standards of living related to wages?

17. How do you account for the fact that wages in general are higher in the United States than in England?
18. Why does not the movement of labor from place to place wipe out differences in wages?
19. It is entirely possible for carpenters to receive 80 cents an hour in Atlanta, \$1.25 in Boston, and \$1.50 in New York City, and yet be equally well off in these three cities. Explain.
20. What is meant by "non-competing wage groups"? How does the existence of such groups bring about differences in wages?
21. What are the factors that prevent a free movement between these so-called non-competing groups?
22. What is the relationship between wages, on the one hand, and the seasonal nature of some occupations and the cost of training, on the other?
23. Explain the manner in which psychic income may have an effect upon money wages.
24. Would you expect persons engaged in hazardous and disagreeable occupations to receive unusually high wages because their tasks are hazardous and disagreeable? Is it a fact that they do receive unusually high wages?

REFERENCES FOR FURTHER READING

See list of references at the end of Chapter 29.

28. Interest

Interest is a payment for the use of savings, as rent and wages are payments for the use of land and labor, respectively. Some savings are borrowed from the savers and used in the purchase of consumers' goods; but most of the savings of society today are borrowed by business men, who use them for buying capital, or producers' goods. For this reason, some writers define interest as a payment made for the use of *capital*. We shall hold to the broader definition as stated above, but shall of necessity deal very largely with interest paid for the use of savings invested in capital, since they form so large a part of the total savings of every highly industrialized country.

SAVINGS AND INTEREST

The Demand for Savings. We may repeat that savings are desired by some people for buying consumers' goods and by others for the purchase of machinery and other equipment that will aid them in making their productive efforts more effective. Whenever consumers' goods are sold on credit, as is often the case with houses, automobiles, pianos, clothing, and a host of other articles, a demand for savings is created for *consumption* purposes. Whenever enterprisers sell bonds and shares of stock, or secure loans from bankers or private individuals, with the thought of enlarging their plants or buying more or better equipment, there is set up a new demand for savings, but in this case for *production* purposes.

Capital Expressed in Monetary Terms. It is often convenient to speak of capital in monetary terms. A business man, for example, may say that he has capital to the amount of \$500,000 tied up in his enterprise. The economist also finds it desirable at times to employ a monetary expression when talking about capital. But it should always be remembered that back of the money concept is a goods concept, and that, though capital may properly be ex-

pressed in dollars and cents for the sake of convenience, it consists none the less of produced goods intended for further production.

The Productivity of Capital. One of the questions to be answered in connection with the use of capital relates to the ability of the user to pay the owner of capital a premium for its use. Why, we may ask, can interest be paid? What is there about capital that enables an enterpriser to return to the owner of savings not only the amount originally borrowed—that is, the principal—but an additional amount known as interest? Where does the borrower get the 6, 8, or 10 per cent that he pays to the lender of savings, over and above the amount of the original loan?

The answer lies in the productivity of capital or, more correctly, in the greater productivity of labor when aided by capital, as against its productivity when not so aided. Our study of the round-about process of production showed that the indirect method of making goods—that is, the method involving the use of capital—is more productive than the direct method. Indeed, labor without any capital whatsoever is scarcely productive at all. We noted in Chapter 4 that of two economic groups, one employing little capital and the other much, the latter would have the greater chance, by far, of enjoying large quantities of consumers' goods. The point we are anxious to make perfectly clear is that interest *can be paid* because the use of capital adds greatly to the effectiveness of labor as it works with land.

The Accumulation of Savings. A stock of capital is built up through abstinence from consumption on the part of those who have incomes that are often more than sufficient to provide them with the necessities of life. In using the word "abstinence" we have no thought of suggesting sacrifice or self-denial, though doubtless much saving takes place at the cost of lowered standards of living. Capital that is accumulated without sacrifice commands just as much interest as that which, in the same market, is got together only through great self-denial. In either case, however, the "capitalist" abstains from current consumption, and as a result of his abstinence an addition is made to the capital stock of the community.

Capital, then, is accumulated through saving. When a man with a \$10,000 income sets aside, in the form of savings, 10 per cent of this amount, he becomes a capitalist. He has, in effect, voted for the manufacture of \$1000 worth of machinery in place of the production of a like amount of consumers' goods. It matters not at all, so

far as the accumulation of capital is concerned, whether he lends directly to a business enterpriser or puts his thousand dollars into the keeping of a banker. In either case, it is almost certain to be used in the production of more or less durable capital—"goods-making machines"—which, because of the advantages of the round-about process, will increase the productivity of the industrial system.

The Conversion of Savings into Capital. Dollars, of course, do not make capital; nor, for that matter, do they make consumers' goods. But dollars constitute purchasing power, and the man who controls a quantity of money is able to use it for the purchase of producers' or consumers' goods. Consequently, those who receive incomes are voting, month by month and year by year, either for or against the accumulation of capital. If they buy consumers' goods up to the full amount of their money incomes, they create an effective demand for this type of commodities; and consumers' goods, and not capital, will be produced. In this way they vote against capital accumulation.

If, on the other hand, they deposit a part of their money incomes in banks, or lend it directly to business enterprisers, they are, in the main, registering effective votes in favor of more capital. (It is possible, of course, that some small part of such savings will be used for the purchase of consumers' goods.) If the result of their action is a decrease in the immediate demand for consumers' goods, funds are thus rendered available so that business men who need more or better machinery, are enabled, by borrowing from the savers or the banks in which the savers have deposited their savings, to add to their equipment and thus to increase their efficiency and productivity. The net result in the long run is the production of more consumers' goods at lower prices.¹

THE RATE OF INTEREST IN THE SHORT RUN

The rate of interest, like that of rent and wages, may be resolved into a problem of value, and the determination of the interest rate dealt with in precisely the same way as the determination of the price of any economic good. For capital, as we have seen, is the

¹ "To save in the ordinary modern sense is virtually to buy producers' goods rather than consumers' goods. One may, it is true, deposit his savings in a savings bank. In that case he entrusts some one else with the work of investing it, so that he invests it, that is, buys producers' goods with it, indirectly instead of directly."—T. N. Carver, *Essays in Social Justice*, Cambridge, Harvard University Press, 1922, p. 223.

result of saving, and the price paid for the use of capital depends upon the relationship between the demand for and the supply of savings.

Interest as an Example of Short-Run Price Determination. In applying our methods of price analysis to the determination of interest in the short run, we are dealing with a situation which may be likened to price determination for any commodity under conditions of fixed stock. For we are here considering savings that usually have been invested in a particular kind of capital, of which, by definition of the short run, there is a fixed stock.

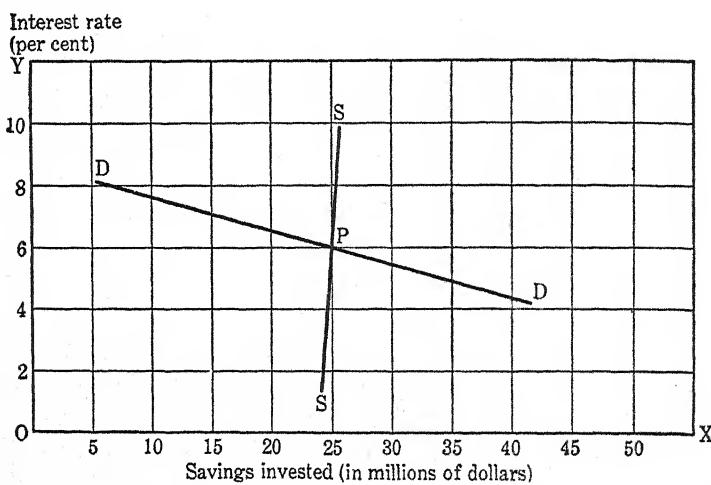


FIG. 52. THE DETERMINATION OF INTEREST ON SAVINGS INVESTED IN A PARTICULAR KIND OF CAPITAL, UNDER SHORT-RUN COMPETITIVE CONDITIONS.

Interest on Savings Invested in Capital. Let us suppose, by way of example, that we are considering the determination of interest on a special type of loom used in weaving silk cloth. The owners of these looms, anxious to secure a return on their investment, will ordinarily either use the looms themselves or place them at the disposal of others who will pay for the privilege of using them. If we think of a loom as constituting the investment of a certain amount of savings, we may think of the return on this investment as an interest rate. If the owner uses the capital himself, the payment is implicit interest; if he lends it to another, it is explicit interest. (These two terms will be discussed later in the present chapter.)

Producers who can employ looms to advantage will pay, under competition, as much as is demanded for their use, up to but not beyond the marginal productivity of this particular kind of capital. Therefore, a demand curve, such as appears in Fig. 52, may be drawn for any given type of capital. In like manner, a supply curve may be drawn. The curve SS shows that we have here almost, but not quite, a condition of fixed supply. In general, the owners of these looms will take whatever return can be had from their investment, rather than get nothing at all. It is true that at a very high rate of interest, such as 10 per cent, slightly more of this kind of capital would apparently be offered for use than would be available at one per cent; to be specific, \$26,000,000 worth would be forthcoming at the high rate, as against \$24,000,000 worth at the low rate. The return in either case would be over and above whatever depreciation would be avoided if the looms remained idle. According to Fig. 52, therefore, the rate of interest under the conditions pictured would be 6 per cent.

Interest on Savings Invested in Consumers' Goods. We suggested above that, in the short run, savings have usually been invested in a particular kind of producers' good, and illustrated the point by reference to a special type of capital. However, savings are often invested in consumers' goods—such, for example, as houses—and the income from these goods may be regarded as interest on the investment. In this case, the rates that consumers pay depends upon the marginal utility of the good in question. Supply and demand curves may be drawn to describe the determination of the interest rate on savings invested in a particular kind of consumers' good, quite as readily as to cover the case of those invested in capital.

Interest on Fluid Savings. Moreover, it is probable that, even in the short run, there will usually be a small amount of *fluid* savings—that is, savings which have not yet found investment in either capital or consumers' goods. In such event, the demand curve would combine the bids of both would-be producers and would-be consumers. Those who wish to buy consumers' goods with these savings would be willing to pay much or little, depending upon circumstances. If it were necessary to borrow for the purpose of an essential and urgent surgical operation, probably the borrower would pay an exceedingly high rate rather than run the risk of delay. If, however, it were a question of buying or doing without an automobile or radio set, it is conceivable that the potential borrower would decline to bid

more than a very moderate rate. He would doubtless base his bid upon the utility of the desired economic good, in relation to the estimated disutility of paying interest on and eventually returning the savings that must be borrowed if the good is to be secured at once.

Producers who desire to borrow savings go through a similar process of reasoning, but in their case the chief consideration is the productivity of the savings when expended for productive equipment. Most savings, as we have said, are employed in productive undertakings, and not loaned out for consumption purposes. A new machine is needed; it will cost so much; this means that a loan must be secured, and a loan is a demand for savings. What rate of interest will the enterpriser pay for the use of these savings? The answer is that under competition he will pay any amount that is not greater than the marginal productivity of the piece of machinery that the savings will put into his possession.

The Marginal Productivity of Capital. For the principle of marginal productivity applies to the demand for capital, as well as the demand for land and labor. No one will pay more for the use of a unit of capital (that is, for the use of the savings necessary to buy this unit of capital) than the unit may be expected to contribute to his total receipts by reason of its marginal productivity. On the other hand, the competitive enterpriser will be inclined to use more and more units of capital in his business just so long as a unit can be had for a price that is no more than the amount obtainable for the additional product attributable to the unit. The marginal productivity of capital may be ascertained by the now familiar method of removing a unit temporarily and noting the loss in total product that results.

THE RATE OF INTEREST IN THE LONG RUN

Savings in the long run, like the fluid savings referred to in the preceding section, constitute a homogeneous commodity, since they have not as yet been invested and hence may be used for securing whatever kind of economic goods the borrower may desire. The demand for savings in the long run must therefore include both the demand of those who wish to secure capital and the demand of borrowers who aim to spend for consumers' goods whatever savings they get hold of. In Fig. 53, the distance from the base line, OX, to the demand curve, dd, indicates the rates of interest at which pro-

ducers would borrow various quantities of savings for the purchase of capital. The curve DD, which is the total demand curve for savings, includes the quantities that would be taken, at each of the several rates, by persons who wish to buy capital, *plus* the quantities that would be taken by those who wish to buy consumers' goods. For example, the dd curve shows that would-be producers would borrow 17½ billions of savings at 6 per cent, and the DD curve shows that 28 billions in all would be taken at that rate. Therefore,

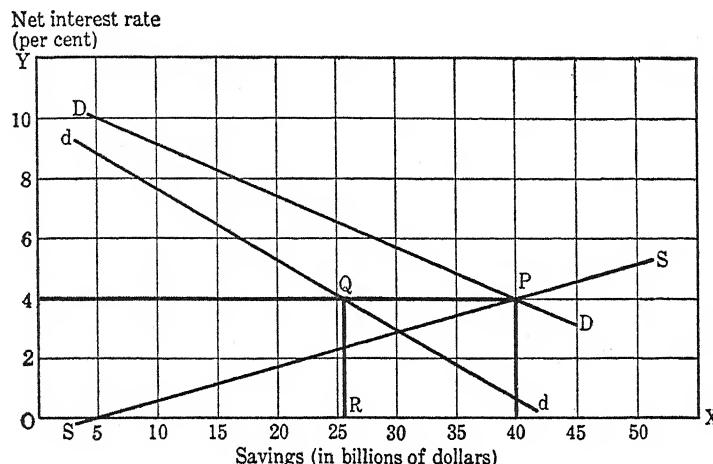


FIG. 53. THE DETERMINATION OF NET INTEREST UNDER LONG-RUN COMPETITIVE CONDITIONS.

The rate of net interest, or pure interest (sometimes called the time-preference rate), is the rate that must be paid in order to overcome the marginal saver's preference for present goods as compared with future goods. The diagram shows clearly that the rate of net interest is a matter of price determination.

the quantity that would-be consumers would borrow at 6 per cent must be the difference between these two amounts, or 10½ billions. At 4 per cent, the quantities would be 26 billions for producers and 14 billions for consumers, or a total of 40 billions of savings.

It should be clear, then, that the total demand curve, DD, shows the prices (or interest rates) at which various quantities of savings would be borrowed by those who wish to gain possession of either capital or consumers' goods. The slope of the curve (downward and to the right) shows that small quantities of savings would be taken if high rates had to be paid, while appreciably larger quanti-

ties would be borrowed if they were available at much lower rates of interest. Whether borrowers are producers or consumers, and whether their needs are great or small, all would be required, on the basis of opportunity costs, to pay the same rate of interest, under conditions of competition. (As will be shown later, though there are differences in gross interest rates, there is a strong tendency toward uniformity in the rate of net interest in the long run.)

The Supply of Savings. The demand curve for savings shows that the lower the interest rate the greater will be the volume of savings that people are willing to borrow. But the supply curve, SS, is similar to the cost curve in price determination under conditions of increasing costs, for it shows that the quantity of savings that will be available for borrowers depends upon the rates of interest offered by the borrowers. If a very low rate were offered, the quantity of saving accumulated and lent out would be small, but it would increase as borrowers bid higher and higher prices for savings. The figure indicates that savers can be induced to part temporarily with 15 billion dollars of savings at a net interest rate of one per cent; with 22 billion dollars at a rate of 2 per cent; with 40 billion dollars at a rate of 4 per cent; and so on.

Savings of the Wealthy. The quantity of savings that will be available for borrowers is closely related to the practice of abstinence from consumption on the part of those who receive and control incomes. The extent to which abstinence from consumption is practiced depends, in large part, upon whether saving involves sacrifice; and if so, upon the degree of genuine self-denial that is entailed in the postponement of consumption. There are in the United States several hundred persons whose individual annual incomes amount to \$1,000,000 or more. It would seem clear that these persons could save some part of their incomes without depriving themselves of any of the necessities of life and probably without denying themselves any consumers' goods they desire.

The Possibility of Negative Interest. To those whose incomes run into the millions, or even hundreds of thousands, there is little need to offer the inducement of interest. It is probable that these persons save almost automatically, failing to spend the whole of their incomes simply because all their economic wants are satisfied long before their total money incomes have been exhausted. Indeed, there are some few very wealthy persons whose annual receipts are so great and whose savings are therefore so large that, if they

were unable to lend out their savings at interest, they would allow others to use them without charge, if only a safe return of the principal were guaranteed. Or they might even be induced to pay business men a small amount to take and use their savings, so that they (the owners) could be relieved of the worry and expense of storing and protecting the unspent portion of their income. The supply curve in Fig. 53 suggests that, in the hypothetical situation there pictured, some five billion dollars of savings belong to persons with enormous incomes, and would be available to borrowers even though no interest were paid.

Middle-Class Savings. There are others who, though their incomes are not so huge, are yet so fortunate as to enjoy annual receipts from which savings can be made without affecting seriously their standards of living. A business or professional man with a salary of \$15,000, \$10,000, or even \$5000 a year, usually finds it possible to lay aside a part of his income year by year, postponing consumption until some future time when his earning power may have declined or stopped entirely. Some of this saving may be motivated by foresight, pure and simple, and might take place without the offer of interest for the use of the savings. But it is quite possible that, in such cases, the payment of interest acts as an incentive, causing the saver to set aside a larger part of his income than would be saved in the absence of the inducement offered by interest.

On this point, however, we cannot be certain, for it is held by some that there are savers who have in mind the accumulation of a definite sum, say \$100,000, by a given time; and that savers of this kind would be compelled, in order to reach their goal, to save a larger amount each year if there were no interest than is necessary when interest is paid. Five thousand dollars a year for twenty years would provide the saver with \$100,000 if interest were not paid, but a much smaller sum saved annually would total \$100,000 in twenty years if the savings were loaned out at interest compounded annually. There is a possibility, then, that the payment of interest may sometimes decrease, rather than increase, the savings of those who receive annually more than they need spend for purposes of consumption.

Savings of the Poor. When we consider those groups of wage earners whose earnings are scarcely sufficient to buy a comfortable standard of living, we find that the urge to spend for immediate consumption is very strong and is unlikely to be resisted unless great

inducements are offered in the form of high interest rates. It is reasonable to suppose that persons with small incomes are the least willing of all to save, and will refuse to save unless the premium offered for the use of their savings is large. Fig. 53 shows that as large an amount as 50 billion dollars of savings can be had only if those who are reluctant to save are offered 5 per cent to overcome their reluctance. Of course, if any savers are paid 5 per cent, all savers will demand this high rate of return from those to whom they lend.

The Time-Preference Theory of the Supply of Savings. Our discussion thus far has shown that some persons, because of their very large incomes, can save without difficulty, while others whose incomes are quite small are able to save only at the cost of inconvenience, or even deprivation. We have no thoroughly reliable data relating to the income groups from which the huge annual volume of savings in this country is recruited, but we may hazard a guess that the capital accumulation from year to year is largely the result of saving on the part of those who could spend their entire incomes without great difficulty, and who would enjoy thoroughly the consumers' goods their savings would buy but are impelled for various reasons to refrain from spending up to the full limit of their incomes. One of these reasons is the desire to provide now for future needs. But there are good grounds for believing that, for most persons, the future weighs less heavily than the present. The admonition, "Take no thought for the morrow," may not be observed to the letter, but there are certainly many individuals to whom the present appears to be much more important than the future.

The Reluctance to Postpone Consumption. When, therefore, a person is asked to postpone consumption until some future time, as he must do if he lends his savings to another, he is likely to question the desirability of the postponement. He will want to know why he should surrender (say) \$100 in purchasing power today for the promise of \$100 in purchasing power a year from now. There is a chance, first of all, that the Grim Reaper will come along and cut him down before the loan is repaid. Or his income may be increasing year by year, so that \$100 will seem less important a year hence than at present. Or, again, he may wish to attend a presidential inauguration or a World's Fair which, once past, cannot be witnessed again for some years.

Hence, though there may be reasons at times why future goods appear to be more desirable than present goods, it seems that most

persons would rather have the use of a dollar today than in the future. The desire for things present rather than things to come is the basis of the theory of "time-preference," which is frequently advanced as an explanation of the supply of savings in the long run. Referring again to Fig. 53, we see that 5 billion dollars are saved by persons who have exceedingly large incomes or by others who are unusually provident. The supply curve shows that this amount could be had by borrowers even without the payment of interest. But in order to call forth further savings, a premium must be paid to overcome the prevailing tendency to spend rather than save.

The Rate of "Time-Preference." This premium is called the "time-preference rate," and its size is believed to measure the saver's preference for present goods as compared with future goods. For some persons the preference is slight and may be overcome by the payment of a very low rate of interest, say, one per cent. But if large quantities of capital are needed, requiring considerable saving on the part of those who *could* readily spend but need not spend their entire incomes, it would be necessary to increase the incentive. Some persons will save at 2 per cent, but not at one; others at 3, but not at 2 per cent; and so on. The supply curve in Fig. 53, showing the prices (in the form of interest rates) at which various amounts would be saved and loaned, illustrates graphically the time-preference theory.

We have emphasized more than once the importance of the marginal unit in connection with price determination. We have seen that the price *received* for each and every unit of a good is the same as that paid for the marginal unit—which is the unit the marginal buyer is just induced to purchase at the price asked. This is the case, even though some buyers would pay more rather than go without the good, as is shown in every demand curve. Necessarily, then, the price *received* for every unit of good is the same as that received for the marginal unit—which is the unit the marginal seller is just induced to sell at the price offered. Again this is the case, despite the fact that some sellers would take less rather than miss a sale. The supply curve indicates the truth of this statement.

The demand for and supply of savings bring about a similar situation. At some point or other there will be an equilibrium of supply and demand. The interest rate at this point will be such that the volume of savings that borrowers are willing to take will equal exactly the volume that lenders are willing to offer. In Fig. 53 the

equilibrium of supply and demand takes place at the point P, the amount of savings borrowed is 40 billion dollars, and the interest rate is 4 per cent. Four per cent is the time-preference rate of the marginal saver. It is the premium that must be paid to overcome his reluctance to save, and presumably it measures his greater desire for present as compared with future goods. According to the time-preference theory, this marginal saver would spend instead of saving, if offered a smaller inducement than 4 per cent interest. So much for the supply side of the problem.

Gross Interest and Net Interest. The rate of net interest, which is the interest rate that we have been discussing thus far, is the price that would be paid for the use of savings if there were no costs involved in collecting and lending out these savings to others, and if, further, there were absolute certainty of the safe return of all loans. It is, in a word, a payment made to induce people to postpone consumption. Net interest, as we have seen, tends to be uniform throughout a given market, since the rate paid for every unit of savings must equal, under perfect competition, the rate paid for the marginal unit. However, it is a matter of common knowledge that some business men pay higher rates of interest than others for borrowed savings. But we are speaking now of *gross* and not *net* interest.

Charges for Administering Loans. Gross interest consists of net interest, plus a charge for handling the loan in question and a further charge for taking care of whatever risk may be involved. Bankers, who spend their time and effort in collecting surpluses from savers and lending them out to others, cannot be expected to render this service for nothing. Consequently, even though there were not the slightest danger of the borrower failing to return his loan when due, the rate of interest demanded of him would necessarily exceed the net interest rate by the amount charged by the banker for his services.

The Element of Risk in Interest. But unfortunately the element of risk is seldom wholly absent from business undertakings. The banker (or other loan agent) who is responsible to the original saver, will therefore add a further item to the interest charge in order to cover risk, on the theory that in the case of every loan he makes there is a possibility of non-payment. Some businesses are more hazardous than others and much more liable to failure, and on this account the charge made to cover risk is sometimes small and,

again, large. Owing to this fact, the gross interest rate is sometimes low and sometimes high.

When credit is extended to well-established, conservative business houses operating in routine fields of industry, the risk of loss is slight and gross interest is low; but when loans are made to enterprisers in new, untried lines of business, such as automobile manufacture at the beginning of the century, the hazards are great, and the lender demands a high rate of gross interest. Gross interest therefore, unlike net interest, does not show a tendency toward uniformity of rate, but varies with the degree of risk that is represented in the loan.

Gross Interest, Marginal Utility, and Marginal Productivity. It is, of course, the *gross* and not merely the *net* interest rate that must be paid by the borrower of funds, whether he wants them for the purchase of consumers' or producers' goods. If this gross interest rate, in a given case, happens to be 6 per cent (made up, let us suppose, of 4 per cent to cover time preference, one per cent for administrative costs, and one per cent for risk), then 6 per cent is the measure, on the demand side of the problem, of the greater utility, or desiredness, of present as compared with future goods, on the part of the marginal borrower who uses the loan for purposes of consumption.

Six per cent represents, also, on the side of demand, the anticipated marginal productivity of the capital that can be bought with these funds, as estimated by the borrowers who are prepared to pay this rate on loans for productive purposes. Certainly, the borrowers who are producers will not pay 6 per cent interest unless they expect, through the use of the additional capital purchased with the funds, to secure an extra product that will at least pay the interest charge. Nor will they cease to add units of capital to their equipment so long as the gross interest charge is smaller than the value of the additional product realized through the use of the capital on which the interest is paid. This means that producers will continue to borrow savings up to the point at which the value of the marginal product of the capital that is purchased is equal to the gross interest paid for the use of the savings.

The *net* interest rate, therefore, is determined by an equilibrium of the demand for and supply of savings. The *gross* interest rate (the rate which is actually paid by the borrower) is determined by the demand for and supply of savings *for a particular purpose*, and con-

sequently varies with differences in the administrative costs and risks involved.

Savings Unrelated to Time-Preference. The time-preference theory of net interest is sometimes attacked on the ground that much saving would take place in present-day society without the payment of a premium to induce the savers to refrain from present consumption. We have already referred to saving by the rich and by those intent upon safeguarding old age. To savings of these kinds, which are not dependent upon overcoming time-preference, may be added those accumulated through public taxation and the reinvestment of corporate earnings. When a government taxes its people for the construction of public works, saving takes place without the payment of interest. Similarly, when the directors of a business corporation decide to use past earnings for an enlargement of plant, there is again enforced saving which does not require that the time preferences of the savers themselves be overcome. However, it is safe to say that corporate savings would not usually be made unless the directors of the corporations expected these savings to pay a return, and this return may properly be regarded as interest.

Importance of the Marginal Saver. But unless sufficient savings are accumulated by such methods, it will be necessary to call upon voluntary savers to provide a part (and probably a large part) of the total quantity. These savers will demand and receive interest, and the rate of interest will be measured by the premium that is necessary to call forth a given quantity of savings. If but little capital is to be accumulated, it will be very largely the result of saving on the part of the well-to-do, the marginal saver will experience but slight inconvenience, and the rate of time-preference will be low. But if huge quantities of savings are to be amassed, it is likely that the marginal saver will be a person of very modest means, that the sacrifice involved in the limitation of consumption will be great, and that he will save only if the net interest rate is high. In general then, a small total quantity of savings can be had at a low interest charge, and a larger total volume will be forthcoming only if the interest rate is raised.

Explicit and Implicit Interest. Interest is *explicit* or *implicit*, depending upon whether the owner lends his savings out or uses them himself. If he lends them to another, the income he receives is explicit interest. If he uses them in his own business, they still return an income—this time implicit interest. The distinction is precisely

the same as the one we have already drawn between explicit and implicit rent. The enterpriser, if he is to have a sound knowledge of his costs of production, must, of course, charge against his business not only rent for land personally owned and used in his enterprise, and wages for his own services, but also interest on savings of his own that are employed in the undertaking.

Interest, Rent, and Economic Inequality. There are two differences between interest and rent that are regarded as important by those who are particularly interested in looking at the distribution of income from the social point of view. The first is that, owing to ineradicable differences in the productivity of various pieces of land, there are great and permanent differences in the amounts received as rent by the owners of different plots of land, depending upon whether they or their forebears have been lucky or unlucky in the selection of sites.

Many people have been made rich because, by the merest chance, they have happened to hold title to some acres on which oil or coal has been discovered, or to a city block which fortune has decreed should be on a main artery of traffic. Thus, pure luck often plays a leading rôle in the distribution of income from land. Savings, on the other hand, command a *uniform rate* of net interest in a given market at a given time; that is to say, all units of savings are paid for at the same rate, except for differences in administrative costs and risks, and with the further exception of differences that may exist for short periods of time though they are wiped out in the long run.

The second distinction between rent and interest relates to the fact, already noted, that land is virtually fixed in quantity, whereas savings increase rapidly in volume year by year. The student who has mastered the theory of value will see at a glance that, as the demand for land increases as a consequence of growth in population, the income from land must increase also, owing to the existence of a fixed quantity. But the amount of savings available (through an increase in saving) may steadily keep pace with the increase in the demand for savings, with the consequence that the net interest rate remains constant. Indeed, it is conceivable that the accumulation of savings might take place at so rapid a pace as to bring about a decline in the rate of net interest.

Some critics of capitalism, though they regard the payment of interest as necessary if we are to have sufficient capital to operate

our industrial machine, hold that rent on land should be appropriated by the government and used for the good of the whole people. The critics point to the distinctions between rent and interest, such as we have outlined briefly; they urge that, since land is a free gift of nature, its benefits should accrue to all the people, and not to a few only; they show that the payment of rent leads to grave inequalities of wealth—inequalities that are becoming greater year by year; and finally, they insist that rent is unearned income—an unnecessary payment—since the appropriation of rent by the state would not deprive society of the use of land. These are questions of great importance, but questions which we cannot undertake to discuss in the present volume.

The Social Usefulness of Interest. Before quitting the subject of interest, we must mention two ways in which the payment of interest is said to be of benefit to society. First of all, it provides an incentive for the saving of income, and thus increases the volume of purchasing power available for building transportation lines and factories, equipping mines and farms, and providing the huge quantity of capital goods that is a part of every highly organized industrial order.

We need scarcely enlarge upon the advantages that result from an abundance of mechanical aids. An understanding of the round-about process is all that is needed to convince one that without a large accumulation of capital we could scarcely hope for high standards of living for the masses. Even those who are most outspoken in their denunciation of the private ownership of the instruments of production seldom deny the usefulness of capital goods. The payment of interest, by encouraging people to save, leads to an increase in the quantity of capital, and thus to the production of more goods and the creation of higher real incomes.

It is also claimed for interest that it directs savings into the most productive economic channels and, as a consequence, confers a great benefit upon society. The argument runs about as follows: Various industries bid against one another for the use of savings. Savings tend to flow into those industries that offer the highest rates of interest (assuming, for the moment, equal risk in all industries). The industry that can pay the highest rate is the one which at present is underequipped, and which therefore turns out so few units of product that, with a large demand for the product, the price received is high and profits are large. Thus an industry that offers a

high rate of interest for the use of savings is one which at present is unable to provide society adequately with its product.

The payment of a high interest rate not only calls attention to society's need for more goods of this particular kind, but also attracts savings to this industry and thus tends to fulfill the need. Other enterprisers, seeing the large profits to be obtained in this industry (profits which result, it should be noted, from society's need for the product), bid high prices for savings, so that they may buy capital with which to enter the industry. Competition results, the good is made in large quantities, the price goes down, and the rate of interest in this industry eventually falls. The net result, then, is that society is amply supplied with an economic good that was previously very scarce.

In a society in which incomes were approximately equal, it is probable that the interest rate would aid in bringing about the production of goods most needed before less essential goods were manufactured. But in our present economic order, the interest rate performs this directive function very imperfectly, if at all. If working-class families need cheap dwellings and rich men want million-dollar yachts, it might appear to be socially desirable to have the houses put up before the yachts are built. But yacht-building is vastly more profitable than house-building, and if savings should be very scarce the interest rate offered by yacht builders for the use of savings might easily be twice as high as that offered by housing contractors. The chances are, then, that savings would be turned into the building of yachts and not houses.

It is doubtless true that the interest rate directs savings into the most productive lines of industry, if by "productive" we mean productive of value; but the payment of interest does not insure that necessities will be made before luxuries. Indeed, it comes closer to insuring that luxuries will be made first. For the large gains obtainable in the luxury trades permit a high rate of interest to be paid, and thus savings are attracted from less lucrative businesses which may, nevertheless, be more essential to social welfare. Certainly, the interest rate does not guarantee that cake shall not be baked until all the people have bread. On the contrary, it may induce some breadmakers to shift to cake baking because of the greater ease in securing savings at the high interest rates that can be paid by cake bakers, but not by the bakers of bread.

Presumably, the force of competition would eventually reduce the

profits of cake bakers so that they could no longer offer unusually high rates for savings. Cake would continue to be made, however, as long as people with purchasing power offered a price sufficiently high to cover all costs of production. Of course, if incomes were approximately equal, it is probable that necessities would be purchased before luxuries were demanded. In the absence of anything approaching equality, high prices for luxuries will be paid readily by the very wealthy; and, as a consequence, there is the possibility that not only capital, but land and labor as well, will fail to be employed in lines of industry in which, from the point of view of public welfare, they are most needed.

Interest is a payment made for the use of savings.

Net interest is a payment made to induce people to postpone consumption.

Gross interest is net interest plus charges added to cover risk and administrative costs.

1. Define "interest."
2. Does capital consist of money or goods?
3. Why is it possible for business men to pay interest for the use of savings?
4. When we say that a stock of capital is built up through abstinence from consumption, what do we mean by the word "abstinence"?
5. Capital is the result of saving. Does every form of saving bring about an accumulation of capital? Explain.
6. A person may lend his savings directly to a business enterpriser or may deposit them in a bank. Is capital accumulated in both of these cases?
7. "To save in the ordinary modern sense is virtually to buy producers' goods rather than consumers' goods." How may a person of small income, with \$100 of savings annually, buy producers' goods?
8. "The rate of interest may be resolved into a problem of value." What, then, will be the forces determining the rate of interest?
9. When people wish to borrow the savings of others in order to buy consumers' goods, what will determine the maximum they will pay for such savings?
10. When people wish to borrow the savings of others in order to buy producers' goods, what will determine the maximum they will pay for such savings?
11. Will the price paid for the use of capital tend to equal the "marginal productivity" of capital? Explain.

12. Discuss the sacrifice involved in the accumulation of savings by the wealthy, by the middle classes, and by the poor.
13. It is sometimes suggested that, if interest were not available, the very wealthy "might even be induced to pay business men a small amount to take and use their savings." Explain why this might be true.
14. Even though millionaires save with no sacrifice, they receive for the use of their savings a rate of interest as high as that received by the very poor who can save only at great sacrifice. Why is this the case?
15. State the time-preference theory of interest.
16. Explain the objections of the average person to the postponement of consumption. What is the relationship between these objections and the interest rate?
17. Some savings are accumulated without reference to the principle of time-preference. Give examples of such savings.
18. Distinguish between *gross* and *net* interest.
19. Give examples of the two items included in gross interest which do not enter into net interest.
20. Distinguish between *explicit* and *implicit* interest.
21. From the point of view of social welfare, there are two important distinctions between interest and rent. Discuss these distinctions.
22. There is a tendency for the net rate of interest to be uniform in a given market, but for there to be differences in the gross interest rates. Explain.
23. Some writers say that the payment of interest is socially useful. What can be said for and against this idea?

REFERENCES FOR FURTHER READING

See list of references at the end of Chapter 29.

29. Profits

Profits are the share of income that goes to the business enterpriser, over and above the return he gets for any land, capital, or labor which he personally puts into his business. We have described the enterpriser as the person, or group of persons, that assumes responsibility for the ownership of a business. The enterpriser, occupying a position of leadership, takes upon himself the responsibility of paying rent, wages, and interest to the owners of the other agents of production, and receives profits by reason of his ownership. Often, as we shall see, he invests his own land, labor, and capital in his business, and receives a return also for the use of these productive agents.

GROSS PROFITS AND NET PROFITS

It is a rather common practice among business men to deduct total expenditures of all kinds from total receipts, and to call the balance "profits." Profits of this kind are called *gross profits* by the economist. *Net profits* are arrived at by making the further deductions of implicit rent, implicit interest, and implicit wages. Only by charging all these items against costs of production can the enterpriser get an accurate notion of the expenses incurred in transacting his business. And not until he has made these deductions does he enjoy profits, in the sense in which the economist ordinarily uses the term; for it is upon net profits, or "pure profits," that the economist lays particular stress.

Wages in Gross Profits. In an earlier chapter we noted the fact that the income paid to *active* business enterprisers for their labor is called wages of management. It is entirely proper, then, to classify as wages (implicit wages, of course) any part of the enterpriser's gross profits that results from employing his own time and energy in his business. This is, indeed, a necessary expense which must be met if the enterpriser is to continue to operate. A reasonable test of

productivity is the ability of the enterpriser to secure employment with another business concern. Whatever he can obtain for his services elsewhere is surely not too much to charge against his own business as wages of management.

Wages of Management and Marginal Productivity. Since managerial ability, as expended in production, is simply a form of labor, the wages of management, like other wages, are determined by the conditions of supply and demand, and tend to equal the marginal productivity of the particular type of human effort that happens to be under consideration. Without again rehearsing the principle of marginal productivity as it applies to wage determination, we may say that the marginal productivity of business ability of a given kind can be measured by ascertaining the difference between the total product of economic society when a single unit of a given type of business ability has been withdrawn from the productive process, and the total product when this unit is employed. The value of this marginal product measures the maximum wage that will be paid for the unit, and competition for managerial labor of this kind will tend to keep the wage up to this amount.

Equalization of Managerial Wages. Marginal productivity measures, moreover, the wages of management received by those who are in business for themselves; for there will be little temptation for a man to operate his own enterprise if it pays him a smaller wage than his services would command in the open market. Moreover, if wages of management paid by an enterpriser to himself should be much higher than the current wage paid to managers of the same grade who are employed by others, the costs of production of the former would be so high as to make it difficult to compete with others in the sale of their product. Hence, we may assume an equalization of the wages of equally competent managers, as of other types of workers, throughout industry in a given market. And, as we have said, the wages of management, like ordinary wages, though equal to the marginal productivity of the particular type of ability that is under consideration, are actually determined by the general conditions of supply and demand.

Rent and Interest in Gross Profits. We have already argued that the enterpriser, if he would keep the records clear, must include in his costs of production the items of rent for land personally owned and used in his business, and interest on savings of his own invested in his enterprise. In each case the amount to be charged can be

determined on the basis of competitive prices for land of this particular quality, and for savings employed in businesses of the type he is conducting. It will be apparent, then, that the payments due the enterpriser for his personal investment of land, labor, and capital, may easily be included in costs of production under the heading of rent, wages, and interest. Indeed, it seems much more logical to classify these payments in this way than to include them with profits.

The Residual Character of Net Profits. Having disposed of implicit wages, implicit rent, and implicit interest in the manner just outlined, we have also disposed of the greater part of gross profits. Indeed, it may appear that there will be nothing left; for we have stated repeatedly, in the past four chapters, that the owner of each factor of production tends to get as his share in distribution the full value of the factor's marginal contribution to production; and we have said, further, that the price of a good is the sum of the prices that must be paid for the use of the several productive agents employed in its making.

Nevertheless, there is often something left over after payments have been made for the use of land, labor, and capital; and since there is no one else in a position to claim this residual or surplus product, it is taken by the enterpriser, who, as custodian of the treasury, is in a peculiarly favorable position to hold fast to whatever may remain after the owners of the other productive agents have been paid off. It is this residual product that the economist has in mind when he speaks of net, or pure, profits. We shall now examine briefly the circumstances in economic life that give rise to net profits.

CAUSES OF NET PROFITS

Our analysis excludes from net profits any payment to which the enterpriser is entitled by reason of an investment of land or capital, or for personal services rendered in the operation of his business. There remain, therefore, only the rewards that may chance to come to him through the *ownership of the business*, which is not the same thing as the ownership of all, or part, of the land or capital used in the enterprise.

PROFITS AS A CONSEQUENCE OF RISK-BEARING

The enterpriser, as owner of the business, secures land, labor, and capital at stipulated rates. He believes that he can employ these agents of production to produce goods that will sell for a larger

amount than his total costs for rent, wages of all kinds, and interest. But whether he succeeds or not, he is not relieved of his responsibility to meet these definite obligations. If he is fortunate, and succeeds in getting more for his product than it has cost him to produce, he reaps a profit. But if he is unlucky, and his expenditures are greater than his receipts, he is still under the necessity of making the promised payments, and thus suffers losses or, as they are sometimes called, "negative profits."

If, then, as we have already suggested, the enterpriser is in a strategic position to claim for himself the residual product of his business, he is also so situated that he cannot avoid shouldering the losses, if losses there be. On this account, the enterpriser is often described as the risk-bearer of economic life; and the income that is his in the form of net profits, when the business turns out well, is said to be the reward for bearing risk. Unpredictable occurrences, which mean risk for enterprisers, are unquestionably one of the causes of net profits.

To this cause should be added the absence of perfect competition, which may give rise to profits, positive or negative; and also predatory activities in which enterprisers have been known to engage, and through which they have made gains at the expense of others. We shall now look a little further into the sources of profits.

Insurable and Non-Insurable Risks. In our chapter on business risks, we noted that while it is possible to insure against many of the hazards of business life, there are some uncertainties that cannot be eliminated or shifted through the medium of insurance. When business risks can be and are insured against, the insurance premiums become definite costs of production, and thus enter into price. The many uncertainties connected with the operation of modern business, which are not capable of being reduced to statistics and treated on an actuarial basis, must, nevertheless, be taken care of by someone. Risk-bearing of this kind is the special function of the business enterpriser.

General Prices and Profits. Because goods are produced in advance of demand, the enterpriser runs the risk of getting less for his product than it has cost him to produce, owing to a decline in the price level. On the other hand, if luck is with him and the price level rises steadily, the enterpriser may reap a substantial profit.

Let us suppose that a business man begins today to produce goods for sale six months hence. If the general price level is low,

he buys raw materials at moderate prices, and contracts with labor to work at wages that are low because general prices are low. But if, by the time the goods are ready for delivery, the price level has risen appreciably—say, 10 per cent—the goods, though manufactured at low cost on the basis of the old price level, will be sold at high prices on the basis of the new price level. He may gain, further, by borrowing funds when prices are low, and repaying when they are high.

It is clear, then, that, because commodities are produced in anticipation of demand, business men reap profits in times of rising prices; and on this account, enterprisers are always optimistic when prices are on the upward grade. The reverse is true, of course, when prices are declining, since goods made of materials and labor bought at high prices must later be sold on the basis of the new price level, which may mean selling at less than costs of production. Business men lose, moreover, if they are compelled to repay, when prices are low, loans that were made when prices were high. Fluctuating price levels, therefore, give rise to net profits, positive or negative.

Individual Prices and Profits. Even if there were no change in the price level, there would still be risk involved in providing goods for sale at a future time. For, as we emphasized in our study of price determination, it is impossible to know in advance just how great the demand for a given product will be; furthermore, even though conditions of demand were fully known, there is usually little or no coordination between producers, and as a consequence the market may be flooded with a given commodity, or the good may be available in only very limited quantities.

If, because of a larger demand or a smaller stock of goods than was anticipated, enterprisers are able to sell at a price well above costs of production, they take their reward in the form of a substantial profit. But if, as is not infrequently the case, the demand is so small that it will not absorb the total quantity of the good available at a price covering costs of production, the price will of necessity be reduced and producers will have to take a loss. In the absence of any centralized control over production, and with very inadequate knowledge of probable demand, production in advance of demand is a venturesome undertaking.

Profits and Losses in Agriculture. It is particularly so in agricultural pursuits in which an enterpriser's crop may be destroyed by drought, flood, hail, or frost; or, equally bad from his point of

view, may be rendered virtually valueless because of a bumper crop throughout the country. An individual producer's peach crop may be ruined by frost, or his tobacco crop destroyed by hail. A huge yield of cotton may drive the price down until it is well below costs of production; or, again, as has happened more than once, an over-supply of apples may result in the fruit being left on the trees to rot, because the costs of picking, packing, and transporting would be greater than the price obtainable. Sometimes, of course, the shoe is on the other foot. For example, a crop failure in several great wheat-growing areas may so limit world production as to bring a large profit to the fortunate persons whose crops are not affected.

Thus is the enterpriser in the field of agriculture called upon to bear risks. He begins his operations far in advance of the time when the product will be sold, and, as a consequence, his economic fate, until the crops are harvested and sold, lies in the lap of the gods. For, unlike the manufacturer and merchant, he is at the mercy not only of economic but of natural forces as well.

Profits Due to War Conditions. The possession of a large quantity of a given good, or of the equipment needed for its fabrication, may easily give rise to enormous profits if there happens to be an unexpected demand for the good or a limitation of output on the part of some producers. World War I brought an unprecedented demand for essential goods such as steel. As a consequence of this increased demand, stockholders in steel companies throughout the United States drew large dividends, which represented the profits to which they were entitled as owners of these companies, and therefore risk-bearers.

World War I also brought fortunes to a number of American dealers in German dyes, who, because imports from Germany were suddenly cut off, were able to sell the stock on hand at fabulous prices. This, of course, occurred before the United States had developed a dye industry of its own.

Degrees of Hazard in Business. Some lines of business are much more risky than others. Whenever the operation of a business involves the expenditure of large amounts before it can be known whether the commodity or service will be favorably received there are chances of large profits and also of large losses.

An outstanding example of such profits and losses is to be found in theatrical production. The late Daniel Frohman, who was long a leading producer in the American theater, once said that the hazards

involved in this field of enterprise are so great that theatrical production may well be called a gamble. It is almost impossible to predict in advance whether or not a play will achieve popularity. If it does, it may make millions for its sponsor; if it does not, it leaves him out of pocket perhaps some twenty or thirty thousands in the case of a small dramatic production, or several hundreds of thousands if he has gone in for musical comedy or revue.

A somewhat similar situation exists in the clothing industry and other businesses in which fashion plays a prominent part, with manufacturers trying to induce the public to adopt novelties, and the public now accepting and again rejecting the proposed innovations. A happy guess as to what people will buy may lead to large profits, but there is always the possibility of guessing wrong and having to take losses instead. However, it is the particular function of enterprisers to assume risks; and though the business hazards just cited are rather unusual, they differ from the risks of the average business man in degree rather than kind. Some enterprisers are willing to stick to well-established industries in which there is small likelihood of loss, but also small chance for large profits. Others of more venturesome nature sally forth into unexplored fields of industry, lured on by the possibility of unusual profits, and willing to take the chance of losing very considerable sums.

Stockholders as Enterprisers. Since we have narrowed our concept of profits to include only the return that results from ownership of business, we must place in the class of enterprisers (as entitled to profits, and to losses as well) all persons who have their funds so invested that they, being owners or part owners of a business, are risk-bearers. Stockholders, of course, meet these requirements; and stockholders must therefore be regarded as enterprisers, in the sense that they are entitled to a return for risk-bearing.

The buyer of shares of common stock casts his lot with that of other stockholders, and agrees to accept as a reward a share in the profits of the business. If the business prospers greatly, his dividends are large, and he receives a return higher than would be paid him if he lent his money outright to the concern, taking a promissory note in place of ownership. If the business is unsuccessful, the stockholder gets small dividends or none at all. He is, then, sharing in the risk of ownership of the business; and by virtue of his ownership, he receives positive profits when the business does well and negative profits (or losses) when it is conducted at a loss.

PROFITS DUE TO THE ABSENCE OF PERFECT COMPETITION

We have discussed the possibility of profits arising from the uncertainties that appear to be inherent in business undertakings. We have dealt particularly with profits that are closely related to the production of goods in anticipation of demand. Changes in general prices, unforeseen conditions of supply and demand, and forces beyond the control of the enterpriser, such as freakish weather or an important war, have been mentioned as causes contributing to positive or negative profits. We shall note now some gains that are independent of such causes, being the result of interference, intentional or unintentional, with competition.

Discrepancies Between Costs and Selling Price. Let us return to our contention that, under perfect competition, there is a tendency for the prices paid for the productive agents (that is, the total costs of production) to equal the selling price of the good in the making of which they have been used. This contention is sound enough, granted the condition that has been assumed, namely, that of perfect competition. But, as we have so often admitted, absolutely perfect competition is a state that is yet to be attained. This fact does not detract greatly from the significance of our generalizations, but it does prevent our claiming exactness of results in the actual working out of economic theories.

When, therefore, we say that the enterpriser pays the owner of a productive agent the full value of its marginal product, we refer to what would happen under ideal conditions. Since competition is not perfect, the amount paid for the use of a factor of production is only approximately the value of the marginal product. Herein lies an opportunity for a profit for the business man; for, although the landowners, wage earners, and capitalists may be trusted to seek their own self-interest, it is probable that the enterpriser is ordinarily more favorably situated than they for effective bargaining. Indeed, his very existence as a business man is dependent upon his knowing the game and playing it to his own advantage.

The Enterpriser's Bargaining Position. The instability of conditions in the business world makes it virtually impossible for the owners of productive agents to know the exact value of the marginal product of these agents. Ordinarily, they know simply that enterprisers are paying this price or that for a factor of production. They may assume, and fervently hope, that competition will force

enterprisers to offer the full value of the marginal product for the use of productive agents. But the enterprisers themselves may not know precisely the amount that is added to total product by use of the marginal unit of land, labor, or capital; and consequently the rate offered for an agent throughout a given industrial market may be slightly less, or even slightly more, than the exact value of the marginal product.

Naturally, enterprisers will try to see to it that any error that may be made is on the side of underpayment rather than overpayment; the point is that they feel the necessity of being on the safe side of the proposition in bidding for the use of land, labor, and capital. Finally, even though the enterpriser *should* know the exact value of a marginal product, the customary absence of perfect competition would probably prevent the price paid for an agent from being bid up to an amount exactly equal to this value. All in all, then, in the field of actual business practice, there is room for a margin of profit; there is also the chance of loss, but loss is less likely than profit because of the strategic bargaining position of the enterpriser.

The Time Element in the Limitation of Competition. Imperfect competition in the purchase and sale of productive agents is attributable in part to the fact that enterprisers often make relatively long-term contracts for land, labor, and capital. Once the contracts are made, they must be lived up to, despite the fact that other enterprisers, a few days or weeks later, may, in a changed market, make other contracts which are either more or less favorable than the first. Consequently, competing concerns will be operating at the same time with productive agents of equal grades, but agents for which different amounts are being paid in rent, wages, and interest.

Land that was leased many years ago for a long period may cost the enterpriser substantially less, or more, than similar land leased this year by another business man. Wage contracts entered into today covering (say) a two-year period may be more advantageous or less advantageous than a contract signed six months or a year ago. Interest rates change from time to time, and yet, once agreed upon, they run over a period of months or years; thus competing enterprisers have different costs for the use of savings. If the price obtained for a good covers all costs of those enterprisers who have high rent, wages, and interest to pay, the more fortunate enterprisers with their lower costs will enjoy temporarily a margin of profit. If, on the other hand, the selling price of the good is low, the

firms that have contracted for productive agents at an unfavorable time will be compelled for the present to take losses.

The point here made is somewhat different from that which was emphasized in connection with changing price levels. Business men *as a class* make profits in periods of rising prices and take losses when general prices decline. But owing to the time element involved in contracts relating to productive factors, one enterpriser in a given line of industry may be reaping profits, while another, who has contracted for productive agents at a different time or for a shorter or longer period, is taking losses.

The time element, therefore, results in imperfect competition among enterprisers in their bidding for agents of production. For we cannot claim free mobility for land, labor, or capital that is withheld from the market by reason of contracts extending into the future; and without free mobility there cannot be free competition. Moreover, even if there were no contractual obstructions to mobility of the agents, the absence of full knowledge of market conditions on the part of all concerned would prevent perfect competition from being realized, and would thus lead to profits for some enterprisers.

Monopoly Profits. In our study of price determination, we noted the fact that monopoly price has no necessary relationship to costs of production. Though the monopolist may decide that he will obtain the greatest possible total net return by selling large quantities of his product at little more than cost of production per unit, it is equally possible that he may restrict his product, selling only to those high up on the demand schedule, and thus taking a large monopoly profit per unit of product. In either case, monopoly power, complete or partial, is one of the causes of profits, and one of great importance in these days of widespread combination. And, of course, imperfect competition gives rise to profits, as we saw in Chapter 21.

Tariffs and Profits. The erection of protective tariff barriers brings another interference with competition, and is therefore an aid to the realization of profits. The purpose of a protective tariff is to shut out foreign competition, and thus leave the production of a given commodity in the hands of domestic enterprisers. These domestic enterprisers, of course, may carry on active competition among themselves; but it is possible that they will instead come to an agreement, divide up the field, and depend upon a friendly tariff to insure profits.

If, for example, it costs the least efficient American producers

three-quarters of a cent a pound more than Cuban enterprisers to produce sugar, it might be good business for American sugar growers to unite in demanding a one-cent protective tariff. Such a tariff, once attained, would insure at least a temporary profit to all American sugar growers, inefficient as well as efficient. The profit might be wiped out finally by an increase in production in this country, if the increase were of sufficient size to make it unnecessary to rely upon imports of sugar. But in any event, this profit would probably be enjoyed for a very long time, because so large a part of our sugar supply is provided by Cuban producers. Under the tariff conditions suggested above, the major portion of this commodity would continue for a time at least to come from Cuba, and necessarily (because of the tariff) would sell at a high price. The situation would be comparable to that of partial monopoly treated in an earlier chapter. And the net result would be a profit for American producers of sugar.

PROFITS FROM PREDATORY ACTIVITIES

Though honesty is doubtless the best policy in business if one wishes to carry on operations indefinitely, it can scarcely be denied that some business men have made, and others are now making, large profits by engaging in predatory activities.

It is sometimes held that an enterpriser can win success only through fair dealing with his customers, and this is doubtless true "in the long run." The swindler in business life usually comes to grief in the end; but in the meantime he may reap a handsome profit and, by professing conversion and reformation, he may even retain his place in the good graces of the public. Toward the end of the nineteenth century, the evil practices of those in control of some of our great industrial trusts attracted wide attention and brought upon the culprits severe and deserved denunciation. But most of the gentlemen who were involved were able later to renovate their reputations, and their misdeeds were apparently forgiven, and perhaps largely forgotten.

Nevertheless, we have today such legislation as pure food laws to prevent adulteration, organizations such as "better business bureaus" and movements such as "truth in advertising" campaigns to combat misrepresentation, and such bodies as the Federal Trade Commission to police some of the main arteries of business. The existence of agencies of these kinds, designed to whip into line those

who seek to gain unfairly at the expense of the public, is in itself sufficient evidence that it is possible for business men, if unhindered, to make profits through engaging in predatory practices.¹

SOME CONCLUDING OBSERVATIONS

The Temporary Nature of Profits. Our examination of the causes leading to net profits has indicated the unstable nature of this share in distribution, as compared with the greater stability of rent, wages, and interest. Profits are often brought about by conditions that are wholly beyond the control of the enterpriser. For some reason or other, the selling price of a commodity is higher than the costs of production, and enterprisers reap a profit; or, on the contrary, the price happens to be lower than costs and enterprisers are obliged to take a loss.

But these discrepancies between costs and selling price, though they may never be wholly eradicated, are usually in process of being wiped out. In our study of price determination, we noted the effect, upon future production, of a condition of market supply and demand that resulted in profit or loss, as the case might be. We may repeat, at this point, the simple statement that when an industry as a whole enjoys profits, these profits attract the attention of business men seeking opportunities, a larger quantity of the good is produced, price is beaten down, and positive profits tend to disappear. When, on the other hand, losses must be taken, some enterprisers drop out of the contest, a smaller quantity of the good is placed upon the market, and prices tend to rise sufficiently to cover costs of production. It would appear, then, that profits, both positive and negative, are a temporary phenomenon, here today, gone tomorrow, and possibly back again next week.

Average Profits and Individual Profits. In the long run, therefore, we expect to find that the profits of a competitive industry just about balance the losses of that industry. But a close examination of the situation reveals the fact that, while this is probably true for the industry as a whole, there are within the industry individual enterprisers who have profits more often than losses, and others who lose so consistently that they are forced out of business; the

¹ Those who care to learn of specific cases of fraud in modern business life will find some interesting samples in *Your Money's Worth*, by Stuart Chase and F. J. Schlink, New York, The Macmillan Company, 1931. The reports of the Federal Trade Commission also throw much light on this subject.

latter, however, are promptly replaced by other enterprisers eager to demonstrate their ability to achieve business success. Thus we have, in every line of competitive business over a long period of time, a continual weeding-out process. Of course, there is always the chance of being one of the winners; and the spirit of the optimist, and perhaps something of the spirit of the gambler that lures the public into the stock market, leads the individual into the arena of business enterprise where, though many go down in the fray, there is always a chance of making good and achieving economic success.

Profits and Unrecognized Managerial Ability. Positive net profits, it may be said once more, do not arise from the superior managerial ability of the enterpriser, except in so far as he is able to conduct a business in such manner as to yield a greater product, as a manager, than he could secure in the form of wages of management if he were to hire himself out to another enterpriser.

He might, for example, as a manager contribute to his own business \$25,000 worth of product, and yet be classified by outsiders as a \$20,000 man, and be able to command no more if he worked for another. In such event, the \$5000 extra that he realizes through conducting his own business is a payment contingent upon the ownership of the business, and is therefore net profits. As owner he is residual claimant, and is able to collect the full marginal product of his managerial ability, part of which he would lose if he were not in business for himself.

There is the further possibility that the greater freedom of action enjoyed by the able manager who runs his own business may result in gains that could not be realized if he were an employee of another enterpriser. If in business for himself, he might, for example, pursue an enlightened labor policy which would win the loyal and enthusiastic support of his workers and result in low unit costs of production. But when he served as a hired manager, this labor policy might be vetoed or hampered, and the good will and co-operation of the employees be lost as a consequence. His contribution as manager would, of course, be greater in the former than in the latter instance. The difference, since it would not be collectible in wages of management, would be net profits. All gains, therefore, that are attributable to unusual managerial ability which brings to the manager no additional income unless he is engaged in business on his own account, must come under this same heading.

Profits are a return for the assumption of the ownership of business.

Gross profits are the difference between the total receipts and total expenditures of a business.

Net profits are gross profits less deductions for the use of land, labor, or capital that the enterpriser has invested in the business.

1. Define "profits."
2. Distinguish between "gross profits" and "net profits."
3. Give a synonym for "net profits."
4. To which kind of profits does the economist usually refer?
5. How does it happen that wages, rent, and interest are sometimes included by business men in their profits?
6. If profits, as estimated by business men, include any elements of wages, rent, or interest, why does the economist suggest that these items be deducted?
7. Many economists contend that profits should be thought of as a "residuum." Just what does this mean?
8. Net profits are "the return that may come to a person through the ownership of a business, which is not the same thing as the ownership of all, or part, of the land or capital used in the enterprise." Explain.
9. What are "negative profits"?
10. "The bearing of non-insurable risks is the special function of the business enterpriser." What kinds of risks are non-insurable? How may they lead to profits?
11. Explain the manner in which changes in price levels may bring positive or negative profits.
12. How may unpredictable changes in the supply of or demand for a commodity bring profits, positive or negative?
13. Farming is said to be an especially risky business. Why?
14. Explain how profits may result from conditions brought about by war.
15. Contrast profits in well-established industries with profits in new and venturesome businesses.
16. Do stockholders share in the profits of the business? If so, by what right?
17. We have said, in our discussion of prices, that there is a tendency for the total costs of production to equal the selling price of a given commodity. If this is true, how can profits arise?
18. How may ignorance on the part of wage earners lead to profits for business men?
19. Profits are sometimes said to be attributable in part to the fact that enterprisers often make relatively long-time contracts for land, labor, and capital. Why may profits arise from the existence of long-time contracts?

20. Explain how the existence of a monopoly may give rise to profits.
21. Why is it that a business that is protected by a tariff is sometimes able to make larger profits than it would make without this protection?
22. Profits sometimes arise from engaging in predatory activities. Give several examples of such activities.
23. Distinguish between average profits and individual profits.

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30. The Principles of Consumption

Consumption is the goal of production—man makes economic goods in order to have them available for use in the satisfaction of his many wants. Of the multiplicity of human wants and difficulty of fulfilling them because of the scarcity of goods, we had much to say in Chapter 1; and in the chapters that followed we have dealt with some of the complicated processes through which economic goods come into being, are evaluated, and are eventually divided among those who have provided society with the agents of production—land, labor, capital, and business enterprise. Having spent a considerable time examining the operation of our productive system, and noting, as we have proceeded, some of its defects as well as its merits, we shall venture, in this chapter, into the field of consumption, toward which we have been marching through some hundreds of pages.

The Meaning of Consumption. In much of our discussion we have talked about producers' goods, or capital, but we now center our attention upon consumers' goods, which we defined in Chapter 2 as produced goods in the possession of the persons by whom they will be used in the direct satisfaction of wants. Consumption consists of the utilization of goods that answer this description, and of the non-material goods which we call services. Producers' goods, too, are *utilized*, but utilization of this kind is production, not consumption. When a baker uses his oven to make a loaf of bread, he engages in an act of production; but when a hungry man uses the loaf to satisfy his craving for food, his is an act of consumption. The baking of the loaf—production—makes possible the appeasement of hunger—consumption; the former is the means, the latter the end.

"Neglect" of Consumption by Economists. In view of the obvious importance of consumption, it may seem strange that we have allotted but one chapter—less than 4 per cent of the total number in the present work—to its treatment. This, however, is more

space than is commonly given to a consideration of consumption in economics textbooks. Mr. J. A. Hobson, whose writings have shed much light upon this branch of economic thought, has commented upon the subordination of consumption to production in the works of writers on economics. "When the products of industry pass over the retail counter, economic science almost loses count of them," he says. "They pass from sight into the mysterious maw of 'the consumer.' It has never occurred to the economist that it is just as important to have a clear and close knowledge of what happens to products when they have become consumers' goods, as it is to trace their history in the productive stages."¹

There is unquestionably something of justice in this observation, but it must be added that the seeming neglect of consumption by writers on economics has not necessarily resulted from a lack of appreciation of its significance. The truth of the matter is that there is surprisingly little that can be said about consumption in an exact way; and many writers have preferred to write but sparingly, or not at all, on a subject which does not lend itself readily to scientific treatment.

The fruits of production are economic goods, which are objective and measurable; but the fruits of consumption are human satisfactions, and are therefore subjective, variable as between individuals, and largely incapable of measurement. Nevertheless, consumption is a vital process, there are things that can and should be said about it, and—having warned the reader that the subject is not, in general, reducible to exact principles—we shall proceed to say them.

THE CHOICES OF CONSUMERS

The wants of people are made effective, in a price economy such as ours, through the medium of demand; for demand, from the individual's point of view, is the expression of his wants, backed up by purchasing power. But human wants are many, and goods are scarce. Relatively few persons have money incomes sufficiently large to permit them to satisfy all their wants in the way of economic goods. Consequently, most people must go without some of the goods they would like to have; and this means that decisions, or choices, are continually being made by all who exercise their function as purchasers of consumers' goods.

¹ J. A. Hobson, *Work and Wealth*, London, George Allen & Unwin, Ltd., 1933, rev. ed., p. 6.

The Basis of Consumers' Choice. Just why people choose to buy certain commodities and services rather than other goods that are available is a question we cannot pretend to answer, except in the most general terms. It is probable that most choices are made in the hope of maximizing the satisfactions that can be had through the expenditure of a given money income—and this is an idea that we shall develop in some detail a little later in the present chapter. To this statement we may add Mr. Hobson's reflection to the effect that three factors—environmental, industrial, and conventional—influence powerfully the choices that people make in spending their money, and that environmental and industrial influences are more largely productive of wise choices than are conventional influences.

But having said this, we can scarcely claim to have given an adequate explanation of consumers' choices. Indeed, most economists have abandoned hope of finding a completely satisfactory explanation, at least for the present. The truth of this statement is evident in the usual treatment of value theory. In explaining how the price of an economic good is determined, it is customary to assume a condition of demand and to proceed upon that assumption, without undertaking to explain the consumers' choices that have combined to bring about the given condition of demand. We are not criticizing this procedure. On the contrary, we commend it; for human motives in the field of consumers' choices, as in other fields, are difficult if not impossible to fathom; and it is surely the part of intellectual honesty to admit the fact frankly. There can be no objection, of course, to listing (as some writers do) the factors which may *possibly* play a part in affecting consumers' choices.

The Regulation of Consumption by Prices. Of the effect of one such factor—price—we can speak with considerable assurance. For however much a person may desire a certain good, and for whatever reasons, he cannot make his desire effective, and thus convert it into a consumers' choice that has significance, unless he is able to pay the price sellers insist upon getting. The high price of many an economic good puts it quite beyond the reach of most members of society. Moreover, a change in the price of a commodity or service that is in very common use will also affect the amount that is consumed.²

Consumption, then, is very largely regulated by prices, and the influence that prices exert is, of course, one which tends to en-

² See, in this connection, chap. 16.

courage the consumption of a good that is plentiful and discourage the consumption of one that is scarce. In these ways, prices exercise a stabilizing influence over consumption, spreading out the available quantity of a given good fairly smoothly over a period of time, and thus avoiding seasons of great scarcity or glut. A similar point was made in connection with our discussion of speculation, in which we noted that the operations of professional speculators lead, among other things, to a greater stability in both the use and prices of the commodities in which they deal.

Our price system provides a sort of automatic regulator of social consumption which, in the interests of stability, would have to be replaced by an arbitrary control if the present economic order should ever give way to one which lacked a system of prices related to scarcity.

Consumption, the Guide to Production. How do business enterprisers know what goods to produce, and in what quantities? Shall they turn out less clothing and more food? If so, shall they increase the output of meat or cereals? And if the former, shall the increase take the form of beef, pork, or mutton? These and similar questions by the thousands must find answer day by day in our economic order. And—with certain exceptions—the answers must come from consumers.

For, in the final analysis, it is the consumers who tell the enterprisers what to produce, and what not to produce. Since consumption is the goal of production, the goal is not reached unless and until the commodities and services turned out are acceptable to and accepted by the consumers. Economic goods are commonly produced in anticipation of demand, and if, when they appear on the market, they do not appeal to the prospective consumers, the expected demand will fail to materialize. That way, as enterprisers know, lies bankruptcy. And so, though some rash souls produce goods with the thought of bulldozing the public into buying, by far the larger number of producers keep an ear to the ground, listening intently for word of what the consumers are likely to buy.

In the case of well-established commodities and services, this information is not particularly hard to get. Consumers' choices lead to a steady demand, year after year, for many kinds of goods. This is especially likely to be true of staple items, in which there is but little scope for the expression of individual taste. But in some fields of consumption have come changes in demand almost revolutionary

in their nature, so sudden have they been and so widespread their consequences. In the commercial theater, for example, during the past quarter-century, the "legitimate" drama and vaudeville were almost wholly supplanted by silent pictures, and these in turn gave way to the "talkies." Where, we might ask, are the blue serge suits so popular among the men of two decades ago? And what has become of the miniature golf courses that dotted the landscape from coast to cast in the late nineteen-twenties? They have, of course, gone the way of all economic goods that fall into disfavor with that court of last resort—the consumers. Only so long as people continue to buy, can enterprises continue to produce.

Far-Reaching Effects of Consumers' Choices. Whether people buy or refuse to buy may have important economic consequences. When there was a radical change in feminine coiffures a number of years ago, some thousands of Orientals lost their means of livelihood because of the decline in the demand for hair nets. And when women turned from high to low shoes, which required only a fraction as much leather in their manufacture, this change in consumers' choices was felt in businesses that apparently had little or no connection with the shoe industry. It resulted, for example, in higher prices for house-plastering! For the lessened demand for leather led to a smaller production of goats; this in turn reduced the quantity of goat hair available for use in the plastering trade; and this decrease, in the absence of any change in demand, raised the costs of production in house-plastering, and brought a price advance in this branch of the building industry.

Indeed, it is almost inevitable that every change in consumers' demand will be felt somewhere—probably fairly near at hand, but possibly on the other side of the globe—in the field of consumption or production, or both. If the demand for a consumers' good declines, the money formerly spent for it is likely to be used to buy other kinds of consumers' goods, and they of course will experience an increase in demand. This means a shift in the agents of production; for land, labor, capital, and business enterprise tend to move about continually, shifting from declining industries to those which for the moment are expanding. As is evident from a study of unemployment,³ the shift of labor is not always easily made, and genuine privation may result when industrial workers are cast aside. Capital, too, is often difficult to transfer, for much of our industrial machinery is

³ See chap. 9.

highly specialized, and is useless for any purpose other than the one for which it was designed. By way of casual illustration, we may note that the sudden change from silent to "talking" pictures meant the scrapping of huge quantities of specialized capital, and the purchase of new equipment of a different kind, on the part of both the producers of films and those who exhibit them to the picture-loving public. As one writer has said, "business has wings" and its movements in some fields are exceedingly erratic. But this would seem to be a natural and unavoidable situation so long as consumers are free to choose what they will buy, and more particularly in those countries in which many people have incomes sufficiently large to enable them to consume luxuries.

We are not, on this account, suggesting that the consumers' freedom of choice should be curbed. We feel that, in general, the consumer is in a better position than anyone else to direct the expenditure of his money income. This statement should be qualified by the observation that society owes it to its members to give them as much assistance as possible in arriving at wise decisions. But we hold to the view that the consumers' power to accept and reject has aided in the development of many genuinely useful commodities and services; and it seems probable, further, that the satisfaction experienced in the consumption of a good may be enhanced by the fact that the good was chosen freely by the consumer, and not thrust upon him by another.

INDIVIDUAL AND SOCIAL MAXIMIZATION OF SATISFACTIONS

Since production is the creation of utility, and consumption is the goal of production, it follows that production comes closest to realizing its full possibilities when real income is so constituted as to bring about the maximization of satisfactions.

A Note on the Principle of Diminishing Utility. It is scarcely possible to talk intelligently about the maximization of satisfactions without reference to the principle of diminishing utility, which we discussed in our treatment of the Law of Demand.⁴ The principle was there stated as follows: The intensity of a person's desire for a unit of a given good diminishes progressively as additional units of this good are acquired. Since we use the words "utility" and "desirability" interchangeably,⁵ we are justified in restating the principle

⁴ See chap. 16.

⁵ P. 19.

of diminishing utility in these words: *The utility of a unit of a given good diminishes progressively as additional units of this good are acquired.*

In the interests of strict accuracy, we must again note a point which was made in Chapter 16—that the buyer of a good may find, upon consuming his purchase, that his advance calculations were faulty; that he has received less, or more, satisfaction from the good than he anticipated; and that, though the price paid unquestionably measures the *marginal utility* of the good (since otherwise he would not have bought it), it does not, in the strict sense of the term, measure accurately the *satisfaction* derived from consuming it.⁶ But having made this explanation, we shall proceed for the present to disregard the distinction between utility and satisfaction. For we concur in Professor Pigou's view that, in general, "not much harm is likely to be done by the current practice of regarding money demand price indifferently as the measure of a desire and as the measure of the satisfaction felt when the desired thing is obtained."⁷

Individual Maximization of Utility. Applying now the principle of diminishing utility to the expenditure of a money income, we suggest that in order to derive the maximum utility obtainable from the use of a money income the spender must distribute his purchases so that the marginal utility of the last dollar spent for one kind of good will equal exactly the marginal utility of the last dollar spent for every other kind. That is to say, there must be an equalization of marginal utilities in all of the several fields of expenditure. We may illustrate the point by use of a hypothetical illustration, which has been drawn up with some regard for the estimates of budget-makers who have studied the actual expenditure of wages in the low-income groups.

Let us assume, then, that a certain laborer receives a wage of fifteen dollars a week. In the case of a very small income, it is exceedingly important that it shall be made to go as far as possible—for there is no room here for waste. This means that the laborer must act in accord with the principle of diminishing utility—paying strict heed to its implications—for in no other way can he hope to maximize the utility that is obtainable through the expenditure of his exceedingly modest wage.

⁶ Cf. p. 326.

⁷ A. C. Pigou, *The Economics of Welfare*, London, Macmillan & Company, Ltd., 1929, p. 24.

To this end, he must watch carefully the expenditure of every dollar. He must never spend a dollar for a good, if a dollar's worth of some other good holds greater utility for him. Let us examine, for a few moments, Fig. 54, which illustrates graphically the expenditure of the laborer's weekly wage of fifteen dollars. For the sake of simplicity in explanation, we have assumed that there are but five possible fields of expenditure in the economic order in which this laborer lives—that is, he may buy only food, clothing, housing, fuel, or furnishings. Each of the spaces marked off in the five columns shown in Fig. 54 represents the utility of a single dollar's expenditure. In the "food" column, for instance, there are seven spaces, the largest at the bottom and the smallest at the top. This gradual decline in size is intended to show that the principle of diminishing utility is operating in the laborer's purchase of food. If the diagram pictures the situation accurately, the utility of the seventh dollar's purchase of food is substantially less than that of the first dollar's purchase in the same field. The "clothing" and "housing" columns also indicate the workings of the principle of diminishing utility.

It is obvious that a minimum of food, clothing, and housing is essential to survival itself. But beyond the point of bare subsistence, there is considerable scope for the exercise of freedom of choice. The diagram suggests the relative importance of the several kinds of economic goods to the fifteen-dollar-a-week laborer, for it shows that he spends seven dollars of the fifteen for food, four dollars for clothing, two for housing, and one each for fuel and furnishings. The utility of the seventh dollar's worth of food is shown to be the same as that of the fourth dollar's worth of clothing, and of the second dollar's worth of housing. In each of these three fields, the utility of the marginal dollar's purchase is indicated by the small shaded area, and since these areas are equal the marginal utilities are likewise equal.

If the laborer is to get the maximum of utility to be had from spending his fifteen dollars, he must distribute his expenditures in the manner shown in the diagram. This is necessarily the case, for this is the one and only distribution which will bring about the equalization of marginal utilities in all of the five available fields of purchase. If the marginal utility of a dollar of expenditure in one field (say, food) should be less than in any other (say, clothing), this situation would suggest the desirability of spending less on food and more on clothing—or using the seventh dollar (or a part of that

dollar) to buy clothing instead of food. If the maximization of utility is to be realized, dollars (and possibly quarters, dimes, and pennies) must be moved about in search of utility, and nothing must be spent for any type of good whatsoever if its expenditure elsewhere would mean greater utility for the spender. Hence, we arrive eventually and

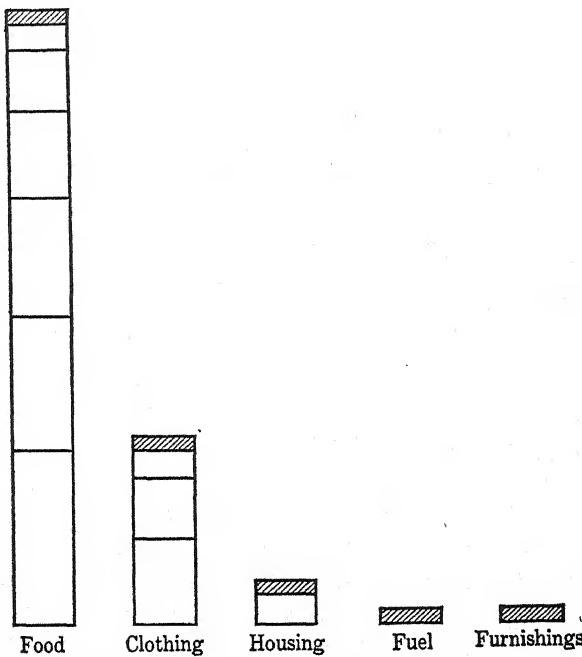


FIG. 54. THE EXPENDITURE OF A MONEY INCOME.

The diagram illustrates the operation of the principle of diminishing utility. The shaded portions of all five columns are of equal size, showing that this distribution of money income has resulted in the equalization of "marginal utilities" essential to the maximization of utility in the expenditure of a given money income.

inevitably at an equalization of marginal utilities, such as is indicated by the five shaded areas in Fig. 54; and until this equalization takes place there can be no maximization of utility.

The deliberate weighing of utilities is continually going on. There are doubtless a few persons whose swollen incomes make it unnecessary to consider seriously whether to make a given purchase or not. But income-getters of this class are clearly a very small fraction of

society as a whole. Even to those who are exceedingly well off, there sometimes comes the necessity of choosing between a new motor car and a summer cruise. For the school teacher, it may be a matter of seeing *Hamlet* or buying a new necktie, since he cannot at the moment afford both. And in the very lowest of wage groups, the question may be one of buying a newspaper or indulging in an extra pipe of tobacco, so meager are the incomes of millions of workers in our present-day society.

We are not suggesting that all consumers' choices are made on a calmly calculated, "rational" basis, for this is far from being the case. The extra cost of taking a friend to lunch, or of having medical attention for a common cold, is incurred by a good many members of society, without giving the matter a second thought. Their incomes are so large that this unexpected expense does not mean retrenching along some other line. But for every person who is in comfortable financial circumstances, there are hundreds or thousands who must pinch the pennies in order to make ends meet. To these members of "the masses," the maximization of utility is a matter of the utmost importance; and it can be attained only by following the sort of procedure we have described. It must be admitted, however, that even those who have appallingly low incomes often fail to maximize utility, because of ignorance, carelessness, misleading advertising, and other causes.

Present and Future Consumption. Another choice that consumers must make is whether to have their consumers' goods now or in the future. Though they cannot eat their cake and have it too, they may, by delaying consumption for a time, enjoy a somewhat larger slice than would be theirs if they declined to wait. By spending only a part of their money incomes for consumers' goods, and investing the remainder, either directly or indirectly, in capital, they are enabled to receive at a later date, in the form of principal and interest, a larger amount than they invested. And this, of course, means a larger quantity of consumers' goods than could have been bought with the sum originally saved, if no rise in the price level has taken place in the period during which the savings were lent out.

In general, present goods appeal more strongly to income-getters than future goods. Indeed, our current theory of interest is based upon this assumption.⁸ A few persons, the very wealthy, are not required to make this choice. Just as they need not decide whether

⁸ See chap. 28.

to buy *this* present good rather than *that*—since they can afford both—so, too, they are relieved of the necessity of choosing between present and future goods—for their ample financial resources insure them an abundant supply of consumers' goods in perpetuity. But ordinary mortals are continually answering the momentous question—to save or not to save—as we have already seen in our discussion of interest in Chapter 28. The motives that influence these decisions, like most motives back of consumers' choices, are clothed largely in obscurity. Some people are undoubtedly saving against old age, and an anticipated inability to earn current income at that future time; others are trying to insure a good education for their children; while for millions of savers the dismal objective is merely the provision of a decent burial when the saver must make his final exit. In many instances, of course, it is probable that the prospect of interest leads to saving.⁹

But we are here concerned not so much with the causes as with the results of saving. To a considerable extent, economic progress is built upon the accumulation of capital, and the large volume of savings in the United States—amounting at times to as much as fifteen billion dollars in a single year—has doubtless contributed greatly to American economic development. We have benefited greatly, then, because some people have chosen future instead of present goods. However, this choice is not always a blessing. Mr. Hobson, for example, has challenged sharply the social usefulness of thrift, in so far as it results in saving instead of spending among those who have very small incomes.

Saving that means a milkless diet for children, clothing that fails to protect the wearer adequately against inclement weather, and the neglect of physical ailments or their treatment with patent medicines, may be costly saving indeed, both individually and socially. Mr. Hobson concludes that not only should the low-income groups not be encouraged to save, but they should definitely be discouraged from doing so. "No part of the economically necessary fund of annual capital ought to be drawn from this sort of saving," he says. "It is literally a coining of human life into instrumental capital, and the degradation of the word 'thrift' in its application to such saving is a damning commentary upon the false standard of social valuation which endorses and approves the sacrifice. The great risks of loss which actually attend such saving, and the heavy expenses of the

⁹ As is explained in the discussion of "time-preference" in chap. 28.

machinery of its collection and administration, aggravate the waste.”¹⁰

The total volume of such savings in the United States is, after all, relatively small, and their absence would scarcely be noticed. In the prosperous year of 1929, the aggregate savings of the people of this country amounted to 15.1 billion dollars. The upper 10 per cent of the families that contributed to these savings (those with incomes of \$4600 or more) saved 13 billion dollars, or 86 per cent of the total. The upper 20 per cent of families (including all whose incomes were at least \$3100) saved 14.8 billions, or 98 per cent of the total amount. It follows that the savings of the remaining 80 per cent of the population amounted to only 2 per cent of the total American savings for that year.¹¹

Though \$3100 a year will strike many readers as being a very small income, it seems likely that this amount would ordinarily permit of some slight saving without involving the saver in any of the human costs of accumulating capital to which Mr. Hobson objects so strenuously. And since 98 per cent of the country's saving is done by families having incomes of at least \$3100, we may well ask whether it might not be socially desirable to try to confine saving to such income groups, in view of the considerable sacrifice with which savings must be effected if they are made by persons who find themselves still lower in the income scale. Of course, any deliberate discouragement of saving among those having exceedingly small incomes would have to be accompanied by social provision for such persons in time of unemployment, sickness, old age, or other periods of dependency. But it may be added that the inability of the poorly paid to provide for such emergencies—however earnestly they may seek to do so—is now generally admitted; and the need for and justice of social provision in such cases is steadily winning wider recognition.

Social Maximization of Utility. We have seen that the individual who fails to maximize the utility obtainable through the expenditure of his money income is, economically speaking, doing less well than he might do. So also, some persons believe, is the society that fails to distribute its income among its members in such a way as to attain the maximization of utility. For (runs the argu-

¹⁰ J. A. Hobson, *Work and Wealth*, p. 105.

¹¹ Maurice Leven, Harold G. Moulton, and Clark Warburton, *America's Capacity to Consume*, Washington, The Brookings Institution, 1934, p. 96.

ment) if it is good economics for an individual to seek the maximum of satisfaction in consumption, it should be equally good practice for a society.

The social maximization of utility would demand that, in the distribution of society's money income, no dollar should go to any person if greater social utility would be had through its going to another. With the money income so distributed, and with the members of society striving earnestly to maximize the utility obtainable from the expenditure of the individual incomes then in hand, the available land, labor, capital, and business enterprise would naturally gravitate to the points where they were most needed. Thus, these agents of production would be allocated among the various industries in such a way as to bring forth those commodities and services which, when purchased by individuals with their money incomes, would lead to the maximization of utility for society as a whole.

But a society that followed this practice would be quite different from the one that we know today. It would, as a matter of course, be one from which wildly extravagant purchases would be outlawed—a society in which \$60,000 sable coats, \$1,000,000 "coming out" parties, and \$5,000,000 private yachts¹² would have no place. The enforcement of the principle of the maximization of utility might conceivably make the following substitutions for the three unusual expenditures noted above: For the \$60,000 sable coat, two thousand woolen coats at \$30 each; for the \$1,000,000 "coming out" party, four million loaves of bread at 10 cents, and four million quarts of milk at 15 cents; and for the \$5,000,000 private yacht, one thousand small houses at \$5000 each.¹³ It is hard to believe that substitutions such as these would not increase the sum total of social utility.

Of course a thoroughgoing adoption of this principle would change our habits of consumption almost beyond recognition. The rule of "first things first" would apply throughout society, and its application would mean the elimination of many commodities and services

¹² These and other examples of unusual expenditures are given in Paul F. Gemmill and Ralph H. Blodgett, *Economics: Principles and Problems*, New York, Harper & Brothers, 1948, 3rd ed., vol. 1, p. 512; also (by the same authors), *Current Economic Problems*, New York, Harper & Brothers, 1947, 3rd ed., p. 491.

¹³ These figures are based on "normal" conditions, and not on the inflated situation which followed World War II. In 1948, for example, the prices would have been much higher, and the quantities much lower, than are suggested above.

which the wealthy and upper middle classes now regard as necessities, but which to the so-called working class appear to be great luxuries. Indeed, a serious and sincere attempt to achieve the social maximization of utility would unquestionably wipe out all extreme inequalities of income; according to some writers, it would probably result (in the interests of ease in administration) in strict equality in distribution; and in any event it would doubtless come close to distributing "to each according to his need"—which, though not at all to the liking of most members of the high-income groups of today, might find defense on economic grounds, and perhaps on ethical grounds as well.

An increase in social utility would mean an increase in social welfare, but, as we have intimated, there are many who would object to increasing social welfare by taking from the rich and giving to the poor; and yet this is the process through which, directly or indirectly, the maximization of utility would have to be effected. Some people hold that the rich are public benefactors—that they endow libraries, art galleries, and medical schools, and that their extravagant spending is beneficial rather than harmful because it provides the poor with work. In answer to this latter contention, we may observe that the construction of \$5,000,000 worth of workers' dwellings may provide quite as much employment as the building of a \$5,000,000 yacht. As for endowments, there is something to be said for securing through taxation whatever funds are needed for purposes of public health, culture, and education, rather than depending upon the generosity of wealthy philanthropists for gifts which sometimes fail to materialize.

The Possibility of Attaining Social Maximization of Utility. There are many people who applaud individual attempts to maximize utility, but are dead against maximization of utility for society as a whole. These objectors, if pressed for an explanation, will frequently admit that, though *theoretically* they favor society's consuming to the greatest advantage the commodities and services it produces, *practically* they cannot indorse a scheme that would take from the rich and give to the poor. Since the social maximization of utility in consumption cannot possibly be achieved without a redistribution of income, it is evident that the interest of these people in social maximization is purely academic.

There are others who would withhold their support from any movement proposing the social maximization of utility, not on the

basis of a sentimental attachment for things as they are, but because they feel that the goal is impossible of attainment. Human beings, they urge, differ widely in their make-up, ranging all the way from the genius in the field of science, art, or business, down to Edwin Markham's man with the hoe—"a thing that grieves not and that never hopes, stolid and stunned, a brother to the ox." How, they ask, can society hope to measure individual capacity to derive satisfaction from the consumption of commodities and services, on the part of people whose heredity and environment vary so greatly; and how, unless this is possible, can society expect to maximize utility in consumption?

The question is a fair one, and one to which, unfortunately, we do not know the answer. However, it may be suggested, by way of partial reply, that the inability to do a job perfectly does not mean that it should not be done at all. If a people should decide that the social maximization of utility is a goal worth striving for, it could doubtless make substantial progress in the direction of that goal, without waiting for the development of accurate means of measuring differences in the capacities of different individuals to get satisfaction from the consumption of various kinds of economic goods. For, though there are undeniable differences of this kind, they are unquestionably less pronounced than the present differences in individual incomes. Moreover, many of these differences in human capacities are, beyond all doubt, differences that result from environment rather than heredity, and these would tend to disappear as the present-day members of society passed gradually from the scene—assuming, of course, that the program to maximize utility was launched forthwith.

Yet another point should be noted in this connection. Though the specific goods that satisfy human needs most fully differ considerably as between individuals, there is no reason to suppose that the *total amount of individual income* needed by one person is necessarily very different from that needed by another. The case is well stated by Mr. Hobson: "An absolutely equal distribution of bread, or any other necessity of life, on a *per caput* basis, would evidently be a wasteful economy. What applies to the prime physical wants will apply more largely to the goods which supply 'higher' wants. For as one ascends from the purely animal to the spiritual wants, the divergences in capacity of utilization will grow. This does not necessarily imply very wide differences in the aggregate quantity

of wealth which can be usefully consumed by different persons, because deficiencies in some tastes or capacities may be compensated by development of others. Moreover, the widest personal differences will usually lie outside the range of economic satisfaction.”¹⁴

If, then, the members of a society regard the social maximization of utility as worth while, they need not be deterred by the fear that the goal is wholly beyond their reach. Those who work for social advance along economic lines, as in other fields, must often content themselves with a smaller degree of progress than they had hoped for. Trying to get the most out of consumption for society as a whole may be a Herculean task, but that is scarcely a sound reason for not attempting it. For, as Sir Philip Sidney said several centuries ago: “Who shoothes at the midday sonne, though he be sure he shall never hit the marke, yet as sure he is he shall shoothe higher than who ayms but at a bush.” Any increase in social utility that might be achieved, though it falls far short of full maximization, will be accounted better than no increase at all by those who believe sincerely that the social maximization of utility in consumption is a goal worth aiming at.

Consumption in the Form of Leisure. Earlier in the chapter we discussed consumers’ choices as among different kinds of consumers’ goods, and as between present and future goods. But there is yet another type of choice which people, individually or in groups, are called upon to make—the choice between much consumers’ goods and little leisure, on the one hand, and less goods and more leisure, on the other. There is little point to having a huge income in the form of consumers’ goods if the business of acquiring them robs one of leisure in which to enjoy these goods. “What is a man,” asks Hamlet, “if his chief good, and [profit] of his time, be but to sleep and feed? A beast, no more.”

Leisure, it would seem, is an indispensable condition to the attainment of a well-rounded life. Mr. Hobson appropriately calls it “the opportunity of opportunities.” However great a young man’s native ability may be, he is powerless to develop it unless he has leisure. Herein lies the explanation of the low economic estate of many people whom circumstances have compelled to leave school and settle down to steady jobs as mere children; for they were handicapped from the very start by the absence of the leisure which the pursuit of many kinds of training demands.

¹⁴ J. A. Hobson, *Work and Wealth*, p. 108.

However, we are interested chiefly, in our present discussion, in the individual's division of his time between *living* and *making a living*, once he has permanently joined the army of the gainfully employed. This, it should be said, is primarily a group rather than an individual matter to decide. For the average worker, however much he may desire leisure, is not in a position to work only six hours a day if his occupation is one in which eight hours constitute the established working day. It is usually groups of workers (operating through collective bargaining), or employers prompted perhaps by their employees, that decide what hours of work shall prevail, and these decisions in turn determine how much or how little leisure large masses of working people are to enjoy.

The choice between more consumers' goods and more leisure is related more closely, then, to social than to individual maximization of utility. Over a long period of time, it is quite possible to have an increase in both consumers' goods and leisure, as is demonstrated by the fact that real wages have been raised and hours of labor lowered substantially in the United States during the past half-century. This sort of thing is possible, of course, during a period of technological progress. But at any given time—say, in the year 1948 or 1949—a gain in leisure is likely to take place only through a sacrifice of consumers' goods. The demand made by organized labor, in the 1930's, for the thirty-hour week seemed to suggest that the choice had already been made by the labor groups, but it remains to be seen whether they can actually put it into effect. If they succeed in so doing, they will almost certainly have to get along on a smaller quantity of commodities and services than would be theirs if they worked forty hours a week. For it is virtually inconceivable that *at a given time and with no change in the technique of production* as much goods can be turned out in thirty hours of work as could be turned out in forty hours.

This does not mean that the movement toward greater leisure is unwise. It might, on the contrary, have a profoundly beneficial effect upon both individual members of society and society as a whole. The outcome would depend upon how this additional leisure time was employed. If used for wholesome recreation, for the pursuit of hobbies, for self-development, for community undertakings of various kinds, and for the exercise of a positive and intelligent interest in social affairs generally, the loss in economic goods would

probably be as nothing in comparison with the gain in the "good life" that would accrue to great numbers of people.

But though gains such as these are doubtless more important than the economic goods that could have been made had these leisure hours been given over to work, we must not delude ourselves into supposing that we can have both the leisure and the goods. And however laudable the drive for shorter hours may be, we should recognize the fact that it is based largely upon a false premise—the notion that hours of labor must be shortened so that there will be enough work to go around. Apparently some people do not realize that if the thirty-hour week would give employment to all who want it, the forty-five-hour week would do not only that, but would also provide a national income approximately 50 per cent larger than could be had under the shorter week. We are not arguing that the longer working week is preferable, but merely that it would provide us with more economic goods, and, as was shown clearly in our study of the "make work" fallacy,¹⁵ would not necessarily lead to unemployment.

-
1. What justification, if any, is there for saying that consumption is the goal of production?
 2. Coal consumed in a locomotive is not consumption, but coal consumed in a house-heating furnace is consumption. Explain.
 3. "The subject of consumption should be treated as extensively as production, in economics textbooks." Argue pro and con.
 4. In spending their money incomes, why do people choose certain commodities and services instead of other economic goods?
 5. "Consumption is regulated by prices." Explain.
 6. It is sometimes said that production is guided by consumers. What is the meaning of this statement?
 7. "Whether people buy or refuse to buy may have important economic consequences." Why?
 8. What has the principle of diminishing utility to do with the maximization of utility in consumption?
 9. How can an individual know when he has maximized the utility obtainable through the expenditure of his money income?
 10. In what way is the equalization of marginal utilities related to the maximization of utility in consumption?
 11. The maximization of utility is a matter of the utmost importance to those who have small money incomes. What factors might lead to their failure to achieve maximization?

¹⁵ In Chap. 10.

12. Discuss present and future consumption, and explain why people sometimes choose the latter in preference to the former.
13. What is Mr. Hobson's attitude toward future rather than present consumption for members of the low-income groups? Why does he adopt this attitude?
14. What part of the savings of the United States in 1929 was made by those belonging to families having family incomes of less than \$3100 each? What conclusion in the chapter is based in part upon this situation?
15. State, in your own words, how the distribution of income would probably be affected by a sincere attempt to maximize the social utility of consumption.
16. How would the maximization of utility affect "conspicuous consumption"? Why?
17. Do not the extravagant expenditures of the very wealthy provide work for others? Is this not sufficient justification for such expenditures? Why or why not?
18. Discuss the possibility of actually achieving the social maximization of utility in consumption.
19. Are there any serious obstacles to the attainment of the individual maximization of utility in consumption? Explain.
20. What is Mr. Hobson's answer to the statement that the great differences in human capacities for getting satisfaction from consumption lead to the necessity of having great differences in individual incomes?
21. Discuss leisure as "the opportunity of opportunities."
22. Upon what economic fallacy is the appeal for a thirty-hour working week sometimes based?

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